

ROCKS AND MINERALS

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EPIDOTE AND ROCK CRYSTALS

Copper Mountain, Prince of Wales Island, Alaska.

Courtesy Smithsonian Institution.

60c

NOVEMBER - DECEMBER, 1953

(WHOLE NUMBER 257)

55th LIST OF FINE MINERALS

MANGANITE, Ilfeld, Harz. Xld. mass. $2\frac{1}{2} \times 2 \times 1\frac{1}{2}$	\$3.50
COPPER, pseudo. after ARAGONITE, Bolivia. $\frac{1}{2}$ " xl.	2.50
IDOCRASE (YESUVIANITE), Vilui River. Two $\frac{3}{4}$ " xls. in rock	4.00
SILVER, Michigan. Two $\frac{1}{2}$ " crude xls. on Copper. $2\frac{1}{2} \times 1\frac{1}{4}$	6.00
AIKINITE, Ural Mts. Blades in white Quartz. 2×2	2.50
NICCOLITE, Saxony. Mass with xld. surface. $2\frac{1}{2} \times 1\frac{3}{4} \times 1\frac{1}{4}$. Quite rare.	3.50
EUCHROITE, Hungary. Xl. masses on rock. $3 \times 1\frac{1}{2}$. Found in 1862.	7.50
MILLERITE, Gap Mine, Penna. Solid botryoidal xline. mass. $3 \times 1\frac{1}{2}$	6.00
CERARGYRITE, N. S. Wales. Xld. mass. $2 \times 1\frac{1}{2} \times 1\frac{1}{4}$. $3\frac{1}{2}$ oz.	10.00
COVELLITE, Sardinia. Mass of xls. $2 \times 2 \times 1\frac{1}{2}$	3.50
CASSITERITE, Newry, Maine. Brilliant $\frac{5}{8}$ " xl. in Feldspar. $3 \times 1\frac{1}{2}$	2.00
TOPAZ, San Luis Potosi. Colorless xls. on rock. 2×2 . Not cuttable.	2.50
AMBER, Baltic Sea. Polished mass enclosing several insects. $1\frac{1}{2} \times 1\frac{1}{4}$	10.00
CHONDRODITE, Tilly Foster. Small bright xls. w. xld. MAGNETITE.	
$1\frac{1}{2} \times 1\frac{1}{4}$	2.50
EPIDOTE, Bourg d'Oisans. Xld. with Quartz xls. 3×2 . Attractive.	5.00
ARGENTITE, Harz Mts. Xld. with SILVER. $1\frac{1}{2} \times 1\frac{1}{4}$	5.00
LIROCONITE, Cornwall. Brilliant blue xls. in rock. $3 \times 2\frac{1}{2}$	12.50
KERMESITE, Saxony. Radiated xline. on rock. 2×1	2.00
CINNABAR, Almaden, Spain. Micro. xld. & xline. mass. $2\frac{1}{2} \times 2\frac{1}{2}$	5.00
HARMOTOME, Old Kilpatrick. Large xls. on matrix. 2×2	2.00
HEMATITE, Elba. Group of large (up to $1\frac{1}{2}$ "") splendent black xls.	
$2\frac{1}{2} \times 2$	3.50
SCORODITE with PHARMACOSIDERITE, Cornwall. Micro. xld. in rock. 2×2	3.50
ARSENIC, Schneeberg, Saxony. Massive with some rock. $2\frac{1}{2} \times 2$	2.00
DARAPSKITE with KROEHNKITE, Chuquicamata, Chile. Xline. $2\frac{1}{2} \times 2$	2.00
BOURNONITE, Cornwall. Xld. (not "cogwheel") w. xld. SIDERITE. 3×2	3.00
ARANDISITE, Arandis, S.W. Africa. Green xline. mass w. quartz. $3 \times 2\frac{1}{2}$	7.50
LEIGHTONITE, Chuquicamata. Xld. on rock. $2\frac{1}{2} \times 1$. (irregular shape)	2.50
PSEUDOMALACHITE, Hungary. Solid mammillary mass. $2\frac{1}{2} \times 1\frac{1}{2} \times 1\frac{1}{4}$	4.00
LEUCITE, Ariccia, Italy. $\frac{3}{4}$ " opaque xl. in rock. 2×2	1.50
PYROXENE, Diana, N. Y. Deep green 2" xl. w. smaller xls. $2\frac{1}{2} \times 1\frac{1}{2}$	2.00
PYRRARGYRITE, Harz Mts. Xld. w. Galena and Calcite xls. $2\frac{1}{2} \times 2$	6.00
EMBOLITE, Broken Hill, N.S.W. Xl. masses on manganese ore	5.00
ANALCIME, Tyrol. Reddish xls. on rock. 3×2	1.50
DANBURITE, Russell, N. Y. Mass of small xls. $1\frac{1}{2} \times 1\frac{1}{2}$	2.50
TETRAHEDRITE, Cornwall. Xls. coated w. brassy Chalcopyrite. $2 \times 1\frac{1}{2}$	2.50
RUTILE, Chester Co., Pa. Very large xl. $3 \times 3 \times 2\frac{1}{2}$ ($1\frac{1}{2}$ lbs.)	7.50
PYROMORPHITE, Wheatley Mine, Pa. Well xld. mass. $2\frac{1}{2} \times 2$. Fine old-timer.	7.00
SPINEL, Amity, N. Y. Several xls. (up to $\frac{5}{8}$ "") in matrix. $2\frac{1}{2} \times 2 \times 1\frac{1}{2}$	2.50
SCORODITE, Ojuela Mine, Durango. Finely xld. on matrix. $2\frac{1}{2} \times 1\frac{3}{4}$	2.50
CALCITE, Cumberland. Mass of "nailhead" type xls. $4 \times 3 \times 1\frac{1}{2}$	3.50
SIDERITE, Cornwall. Xld. with blue Fluorite in rock. $3 \times 1\frac{1}{2}$	2.00

HUGH A. FORD

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NEW YORK 5. N. Y.

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No lists furnished, but inquiries for specific minerals welcomed.

ROCKS and MINERALS

PETER ZODAC, Editor and Publisher
America's - Oldest and Most Versatile
Magazine for the Mineralogist, Geo-
logist, Lapidary.

Published Bi-Monthly

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WHOLE No. 237

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NOVEMBER-DECEMBER, 1953

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Chips from the Quarry

MERRY CHRISTMAS! — HAPPY NEW YEAR!

The Editor extends to each and every one of our subscribers, advertisers, readers and friends, a Merry Christmas and a Happy New Year. May 1954 prosper each and everyone of you abundantly, socially and financially is our sincere wish.

From an Old Fox that Refuses to be Called A Rockhound!

Editor R & M:

Enclosed you will find a P. M. O. for another year's subscription for **ROCKS AND MINERALS**. May I again praise your splendid magazine as the best ever. I could ill afford to do without it. Hope your summer's hunting has been good.

By the way I just received information that the company constructing the N. Y. Thruway, during piling operations north of the town of Catskill, has run into bottomless caves. If they find no bottom the route may have to be changed. It would be very interesting to crack those caverns open.

The very best regards from an old fox that refuses to be called a rockhound.

K. Einar Whalen
229 St. Johns Place
Brooklyn 17, N. Y.

Sept. 12, 1953

Bitten by Fossil Bug!

Editor R & M:

Enclosed please find my check in the amount of three dollars (\$3.00) for a year's subscription to **ROCKS AND MINERALS**, beginning with the July-August number, 1953.

After borrowing one copy of your splendid magazine, I know that many questions of the rock hunting family will be answered. We were bitten by the "fossil-bug" three years ago on a trip to Jemez Canyon, New Mexico. Since then, we have acquired the characteristic nose - to - the - ground - half - crouch walk. Few things equal the excitement of a new find but it is time we begin to learn more about what we are finding. With the help of your writers and the excellent source of material, we will begin to label and catalog.

Mrs. William E. Weber
3120 Oakview Street
Kingsport, Tennessee

Aug. 24, 1953

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912, AND MARCH 3, 1933 OF ROCKS AND MINERALS published BI-MONTHLY, at PEEKSKILL, N. Y. OCTOBER 1st, 1953.

1. The name and address of the publisher, editor, managing editor, and business manager is **PETER ZODAC, PEEKSKILL, N. Y.**

2. That the owner is: **PETER ZODAC, PEEKSKILL, N. Y.**

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: **NONE.**

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholders or security holder appear upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affidavit's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affidavit has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

PETER ZODAC

Sworn to and subscribed before me this 13th day of October, 1953.

ANNA M. SCHLICK
My commission expires March 30, 1955

Words Cannot Convey Joy!

Editor R & M:

Enclosed is \$3.00 for renewal of the subscription to R & M. I sure do enjoy the magazine more than words can convey. Not only the ads but the different columns are

very interesting particularly the "States" and "Sand" and "Fossils", as well as the various stories.

Roy M. Fitts
39 East Elm St.
Yarmouth, Me.

Sept. 4, 1953

NOTES ON SOME

SHORELINE MINERALS OF SAN FRANCISCO, CALIFORNIA

By LU WATTERS

410 Lake Street, San Francisco, California

The minerals described in this paper are found along a three mile stretch of shoreline that extends from Fort Point, at the entrance to San Francisco Bay, to Point Lobos, site of the famous Cliff House and Seal Rocks.

This shoreline consists of a series of sandy, pebbly, and rocky beaches set apart from each other by rugged cliffs and rocky promontories. The rocks are predominantly late Jurassic serpentine, sandstone, and siliceous chert of the Franciscan series. Basaltic dikes are found intruding these rocks between Fort Point and Baker's Beach. Pillow basalt and amygdaloidal basalt outcrop near Land's End. The basalts are highly metamorphosed and are usually dark green in color, but sometimes vary from gray to black.

The numerous serpentine slickensides, the breccias, and the steep anticlinal and synclinal warpings of the chert beddings attest to the chaotic stresses that these rocks have been subjected to in the past. At Fort Point, Eakle's Beach, Marshall's Beach, and Land's End the serpentine rock masses are in a landslide condition of weakly consolidated debris and included boulders. During wet weather the effects of gravity, saturation, and serpentine ooze, combine to transport portions of these loose rock masses down the slopes towards the beaches below. The resulting landslide scars are conspicuous features of the landscape.

Most of the minerals are found on or close to the beaches in the serpentine zones. The occurrences are rather scattered and time, patience, and the proper tools are required to obtain good specimens. Some of the species, although of common rank, occur in interesting crystals and make worthy additions to a collection. New material is moved down the slopes to the beaches each year by the erosive

landslide action and in the future will probably reveal some minerals not yet noted from the area.

Great care must be exercised when climbing about the cliffs, particularly between China Beach and Point Lobos, where a number of people have been injured by falls. In some places tidal conditions must be judiciously considered. The low minus tides expose more rocks and make it easier and safer to search for specimens.

The accompanying map shows the various beaches found along this picturesque shoreline. Eakle's Beach and Marshall Beach are unofficial names used to help pin-point certain occurrences. Marshall Beach has been known by this name to local swimmers and hikers for at least twenty-five years. Eakle's Beach, approximately one-third of a mile in length, is named by the writer in honor of Dr. A. S. Eakle, one of the first mineralogists to study the minerals of the Fort Point area.

Fort Point and a large adjacent area was first fortified and set up as a presidio by the Spanish in 1776 to protect the entrance to San Francisco Bay. Today, after one hundred and seventy-seven years, a few wars, one gold rush, and several earthquakes, the Presidio remains intact, although its usefulness as guardian of the bay is only symbolic in the light of modern warfare.

The seven-eighths mile wide entrance to San Francisco Bay is called the "Golden Gate," with Fort Point on the south side of the channel and Lime Point on the north side providing the anchorages for the world's longest single span suspension bridge. Through this passage flow the combined waters of the Sacramento and San Joaquin rivers as they carry on their task of draining the vast dendritic watershed system of the Sierras and the lesser tributary system on the east side of the

Coast Range.

The earliest recorded observations on the minerals of the Fort Point area were made by Dr. A. S. Eakle (1901) and Dr. W. T. Schaller (1905). Bulletin 136, an excellent work on the minerals of California by Professor Joseph Murdoch and Professor Robert W. Webb, is the latest bulletin issued by the California Division of Mines to contain excerpts from the early notes of Eakle and Schaller.

The writer is indebted to Mr. Richard Crippen Jr. of the California Division of Mines at San Francisco for his help in identifying the minerals listed below and also for his suggestions on the text of this paper.

ACTINOLITE: Found as aggregates of grass-green bladed crystals between Eakle's Beach and Marshall Beach.

APOPHYLLITE: Very minute crystals of apophyllite associated with gyrolite were noted by Dr. W. T. Schaller at the Fort Point area. Not found by the writer.

ARAGONITE: 1—Coralloidal aragonite (*flos-ferri*) is found sparingly as attractive snow-white groups of interwoven stems in vugs in the silica-carbonate rocks found on the slopes and beach about 250 yards west of Land's End.

2—Aragonite occurs at the south end of Marshall Beach as delicate hair-like crystals that average about one centimeter in length and sometimes reach a length of three centimeters. They are often found in radiating groups associated with datolite and are colorless, white, and gray in color.

3—Slender prismatic crystals of aragonite, acutely terminated, and up to two centimeters in length, are found at Fort Point, Eakle's Beach, and particularly at Marshall Beach. Choice crystals with a fresh vitreous luster are usually colorless to snow-white, but sometimes show a tinge of yellow or salmon-pink. They are found in seams and pockets in brecciated serpentine that has been recemented by calcite and other carbonates.

4—Small circular tufts of radiating aragonite crystals, snow-white in color, are found in serpentine at the south end of the sea wall at Fort Point.

BARITE: Dr. A. S. Eakle reported the occurrence of tabular crystals of barite in seams of serpentine at Fort Point. Not noted by the writer.

CALCITE: 1—Colorless and white crystals of calcite, from one millimeter to one centimeter in size, are found in the silica-carbonate rocks 250 to 350 yards west of Land's End. The crystals are found in aggregates of flat rhombohedral plates and are associated with quartz crystals.

2—Thick six-sided tabular crystals of calcite up to three centimeters occur in fissures in serpentine just south of Marshall Beach. The crystals are colorless to white.

3—White, yellow, blue, grey, and black botryoidal coatings of calcite on serpentine and sandstone are found at Marshall Beach.

4—Small distorted golden calcite crystals occur in seams in sandstone at Marshall Beach and on the slopes above.

5—Colorless and white cuboid crystals of calcite occur in serpentine and basalt at Eakle's Beach and Marshall Beach, and vary from micro-crystals up to two centimeters in size. These negative rhombohedrons show angles of $91^{\circ} 42'$ and closely resemble a cube. This uncommon form of calcite is illustrated on page 193 (figure 222) in Brush and Penfield.

CHALCEDONY: Found on the slopes above Land's End in amygdaloidal basalt. Common throughout the shoreline strip as the cementing agent for brecciated chert and jasper.

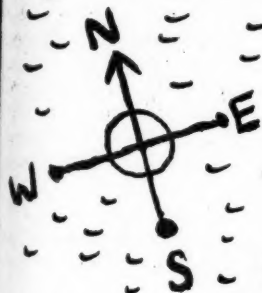
CHRYSOTILE: Both silky and coarse fibrous chrysotile occur as seams in serpentine in the area.

DATOLITE: Found as crystals and veins in the altered diabase dikes found cutting serpentine and sandstone at several points between Fort Point and Baker's Beach. Choice modified crystals up to two centimeters in length occur in pockets in massive veins of datolite at the south end of Marshall Beach. Many of the crystals are glassy, some are colorless and limpid with a brilliant luster, and a few have a light smoky tone.

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GOLDEN GATE BRIDGE →

FORT POINT



MARSHALL EAKLE'S
BEACH

PRESIDIO

BAKER'S BEACH

CHINA BEACH

MILE ROCK
LIGHTHOUSE

LAND'S END

LINCOLN PARK

PATTON'S
PROJECT

POINT
LOBOS

SUTRO
BATHTS

CLIFF
HOUSE

SEAL
ROCKS

DIOPSIDE: Found in the green metamorphosed basalt between Eakle's Beach and Marshall Beach. Both common white diopside and lilac colored manganese diopside occur at this locality as small veins and in groups of micro-crystals. The associated minerals are actinolite, pectolite, and calcite. The minute groups of manganese diopside crystals make outstanding micro specimens.

DOLOMITE: Occurs sparingly as small white to dark gray platy crystals in the tough silica-carbonate rocks 250 yards west of Land's End.

GYROLITE: Dr. W. T. Schaller mentions gyrolite as occurring in basalt at Fort Point. Gyrolite is also found as secondary fillings in crevasses of serpentine at Fort Point.

HYDROMAGNESITE: Small veins and nodules of hydromagnesite occur in serpentine between Fort Point and Baker's Beach.

JASPER: Red and yellow jasper, variegated jasper, brecciated jasper, and a spherulitic type, locally called "Kinradite," are found as pebbles and sometimes as boulders along the beaches. "Kinradite" was also found when the bedrock was being prepared for the foundations of the Golden Gate bridge. Several times a year wave action will change the surface condition of the beaches. Sometimes the beaches are in a sandy stage and at other times large beds of pebbles are exposed. Jasper of lapidary quality can of course be more readily found when the pebble beds are well exposed.

MAGNESITE: Cauliflower-like nodules of magnesite up to ten inches in width are found weathering out of the serpentine slopes at several points between Fort Point and Baker's Beach.

PECTOLITE: Radiating pectolite is found in the basaltic dikes at the south end of Eakle's Beach.

PYRITE: Occurs as small cubes, one to three millimeters in size, in a large glaucophane boulder that is exposed at low tide near the huge split sandstone spire that rises out of the surf about 1/4 of a mile west of Land's End. Pyrite is

also found as inclusions in some of the shoreline jasper pebbles.

QUARTZ: 1—Small but choice quartz crystals are found in vugs in the silica-carbonate rocks 250 to 350 yards west of Land's End. The crystals occur with both single and double terminations and a few of them display highly distorted scepter forms. Both glassy and water-clear crystals occur, and they are often found attached to each other and calcite crystals by their prism faces.

2—Dr. W. T. Schaller mentions the occurrence of quartz pseudomorphs after apophyllite at Fort Point. Not found by the writer.

TALC: Veins of translucent grayish-green talc are found as an alteration product of chrysotile at Land's End and Marshall Beach.

Family Fights For Magazine!

Editor R & M:

The way my whole family fights for the first chance at each new issue of R & M makes the one subscription really insufficient, but I guess it will have to do.

William P. Hinckley
R. F. D. #3
South Brewer, Maine

Aug. 26, 1953

Thoroughly Delightful!

Editor R & M:

By all means do please renew my subscription to your most excellent magazine, **ROCKS AND MINERALS**. I enjoy every word of it and think your covers thoroughly delightful.

Mrs. David H. Keller
55 Broad St.
Stroudsburg, Pa.

Aug. 21, 1953

Must Get His Breath!

Editor R & M:

Was overwhelmed by response to swap advertisement in last issue. No more swaps until I get my breath.

D. Williams
1938 6th Ave.
San Diego 1, Calif.

Sept. 8, 1953

Lots of Information!

Editor R & M:

Please renew my subscription for another year. I do not want to miss a single copy from now on.

You have a very fine magazine which makes good reading with a lot of information for us amateur collectors.

M. S. Ortman
Marion, S. Dakota

Sept. 19, 1953

TRIP TO COLORADO — PART 3

By PETER ZODAC

Editor, Rocks and Minerals

Monday, June 30, 1952

(10th Day of Trip)

Our collecting days in Colorado were over for this trip and so the Editor and his cousin, Royce Phillips of Washington, D. C., would now be heading homeward, via St. Paul, Minn. On our way out we had picked up Royce's Mother, in Winfield, Kans., and left her with her daughter, Mrs. Roy Clark, in Aurora (a suburb of Denver), while we toured the State. You wouldn't think of starting off on a long trip, late at night; but this is just what we did. Due to the excessive heat of the day we drove from Winfield, Kans. to Denver (which heat caused a lot of distress to Royce's Mother) we would make the return trip at night. Ordinarily a trip at night would not be to my liking as I want to see the country traversed, but this time a good part of the way would be thru area I had already seen so I didn't mind it at all.

2745.0 miles—Clark's home in Aurora, 8:30 p.m. With Royce's Mother in the front seat and after many good-byes, we finally started on our return journey. We retraced our route eastward as far as Kit Carson, where we turned right on U.S. 287 and later at 2843.0 mileage we turned left on U.S. 50.

2849.0 miles—The Arkansas River was crossed with the small city of Lamar on its opposite bank. In Lamar we found a gas station still open (it was midnight) so we stopped to gas up.

Mileage for the day—104

Tuesday, July 1, 1952

(11th Day of Trip)

Our route from Lamar was in an easterly direction on U.S. 50. We crossed the Arkansas River again at 2873.0 mileage; the Kansas line was crossed at 2900.0 mileage and at 2952.0 we reached Garden City, Kans. Here we kept right on U.S. 50S. until we hit Dodge City (3006.0 mileage) where we turned right on U.S. 154. At 3023.0 mileage the Arkansas River was crossed again. Our journey eastward from here was without

incident; we stopped for breakfast in the little town of Medicine Lodge on U.S. 160—it was now morning and we could see again but no signs of minerals anywhere. At mileage 3204.0 was Oxford, on U.S. 160, where we stopped for a soda and where the Arkansas River was crossed for the 4th and last time. At mileage 3216.0 we reached Winfield, Kansas. (8:30 a.m.), and the home of Royce's Mother. We were all tired out by now and so we quickly retired for a little sleep.

About 2 p.m. we were up, had a very good dinner, and after bidding his Mother good-bye, Royce and I started off at 2:30 p.m.

Just on the northern outskirts of Winfield is Island Park; which Royce wanted me to see. This is a beautiful flat island, about 1500 ft. in diam. in Dutch Creek—the creek is about 100 ft. wide and the island is reached via a bridge. Island Park is a summer playground for the good people of Winfield.

Leaving Island Park we headed northward on U.S. 77 for Augusta, El Dorado, and at mileage 3288.0—Marion County line was crossed; a mile further (3289.0) was the little town of Burns. At mileage 3293.0 (on U.S. 77 in Kansas) an outcrop of limestone 3 ft. high and 100 ft. long was noted (on the right). We stopped to investigate it. This was a gray, compact limestone which fluoresces brown under long wave light. The limestone is pitted but has a smooth rounded surface and from a distance looks like gray clay. At mileage 3299.0, U.S. 77 went thru a deep cut in limestone, but this time we did not stop.

3301.0 miles—Florence, Kans. on U.S. 77. Here we turn right on U.S. 50S

3301.5 miles—Cottonwood River (100 ft. wide) is crossed. Lots of limestone along the banks of the river but we did not stop.

3306.0 miles—Chase County line on U.S. 50S.

3307.0 miles—Ceder Point R.R. Station—right.

3308.0 miles—Limestone outcrop to right on U.S. 50S, 200 ft. long, 6 ft. high. Found gray chert in the gray limestone. On the left side of the road the limestone is 300 ft. long, 25 ft. high—but I did not walk over to examine it.

3327.0 miles—Strong, Kans., on U.S. 50S.

3332.0 miles—Stopped for a soda at a roadside stand (no town here). In the nearby terrain I found 2 brown jaspers.

3337.0 miles—Lyon Co. line.

3344.0 miles—Slight rain but a perfect rainbow was in front of us.

3347.0 miles—Emporia, Kans., where we stopped for gas. Here a heavy thunder shower struck the area, just as we gassed up.

3351.0 miles—Neosho River crossed—about 100 ft. wide. River almost dry; clay banks visible.

3357.0 miles—Here we stopped to examine a road cut on right. Found a reddish hematite slab, and brownish jaspery chert.

3385.0 miles—Franklin Co. line on U.S. 50S.

3389.0 miles — Limestone outcrop (left), 200 ft. long and 20 ft. high. Collected here a rough brownish fossiliferous limestone—the brownish color is due to brown earthy limonite filling cavities throughout the mass.

3390.0 miles—Williamsburg.

3404.0 miles—Ottawa, Kans. Here we tried to contact one of our good subscribers, Mr. A. C. Carpenter, who lives at 304 E. 11th St., (opposite Ottawa University) but without success as he was, apparently, out of town; no one was home. Ottawa University consists of a nice group of buff colored limestone buildings. Leaving Ottawa, we headed northward on U.S. 59.

3428.0 miles—The University of Kansas seen from this spot—on hill way off in front of us—Royce pointed it out to me.

3430.0 miles—Wakarusa River crossed—50 ft. wide.

3434.0 miles—Lawrence, Kans., nice

city. We go down Massachusetts (Ave.)

3436.0 miles—Beg. bridge over Kansas River in Lawrence.

3436.5 miles—End of bridge. At the end of the bridge and on right was a nice sand beach, 200 ft. long and 50 ft. wide. Royce soon parked the car and we both walked down to the river. The beach was all sand, in fact the whole bank for some distance was sand. The water was dirty gray in color but warm; there is a dam in the river and right under the bridge. Of course I collected a sample of sand. (see R & M, July-Aug. 1953, p. 387).

3436.8 miles—Union Pacific R.R. Station on right.

3438.0 miles—U.S. 24 joins on right.

3446.0 miles—We turn right for the N. R. Hamm limestone quarry which we saw before but never stopped.

3446.2 miles—Park at quarry. No one was around and so we had it all to ourselves. Unfortunately the quarry did not look too interesting from a collector's point of view. It was about 500 ft. in diam. and 15 ft. high. A good part of the limestone was very friable—fell to pieces easily in the hand. I managed to find a good specimen of creamy-gray fossiliferous limestone.

3446.4 miles—We turn right on U.S. 24.

3466.0 miles—Nod Away Motel, left side of U.S. 24 in Topeka. Here we stopped for the night—had cabin #3 (\$7.00 for 2). It was very, very nice—probably the best motel I ever stopped at.

Mileage for the day—617

Wednesday, July 2, 1952

(12th Day of Trip)

3466.0 miles—Nod Away Motel—6:10 a.m. We continue on U.S. 24.

3466.4 miles—We turn right on U.S. 75.

3475.0 miles—Jackson County line on U.S. 75.

3488.0 miles—Indian Reservation to left.

3524.0 miles—Fairview, U.S. 36 joins here.

3543.0 miles—Nemaha River crossed—25 ft. wide.

3553.0 miles—Marshall Co. line on U.S. 36.

3575.5 miles—Marysville on U.S. 36. Got gas here. There were a number of interesting pebbles strewn around the gas station and out of curiosity I asked the attendant from whence they came. "From that pit there," he answered, pointing down the road that we were traversing. We got in the car, drove about 500 ft., and there, about 100 ft. to the left, was a large water-filled pit, about 500 ft. in diameter. Two workmen were around and we soon got them into very interesting conversation; one was Charles

Butler of Blue Rapids, Kans., and the other, Arthur Ward of Marysville. I learned that this was Hall Bros. gravel and sand pit—that the pit was not in operation today due to the heavy rain of last night. Ordinarily the pits has 25 ft. of water in it but today it is 50 ft. I collected some interesting pebbles, also some sand and to my great joy the men presented me with a very fine specimen of petrified wood which they had found in the pit some few weeks ago. Mr. Butler told me that he had once found a large piece of red ochre which so stained his fingers red that he thought it was blood.



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Dotted line shows route taken by the author and his companion from Washington, D.C., to Denver, Colorado, and return.

Lamar, Colo.
Winfield, Kans.
Topeka, Kans.
Marysville, Kans.
Lincoln, Nebr.

18. Omaha, Nebr.
19. Council Bluffs, Iowa
20. Sioux City, Iowa
21. Fairmont, Minn.
22. Minneapolis, Minn.

23. St. Paul, Minn.
24. Madison, Wisc.
25. Milwaukee, Wisc.
26. Chicago, Ill.
27. Plymouth, Ind.

28. Crestline, Ohio
29. Hancock, Md.
2. Washington, D. C.
1. Peekskill, N. Y.

The men showed me a big fossil tooth that had been found in the pit and is now the office curiosity. The tooth may be from a mastodon; at least it is 6 inches long.

Aside from the gift of the petrified wood which made me very happy, Messrs. Butler and Ward invited me to make a return visit and—they might have more petrified wood for me! If I am ever in that section again, I will certainly pay the pit another visit.

Among the minerals found in the pit are:—

Biotite: small black flakes in gray granite pebble.

Epidote: rough greenish mass associated with pink feldspar.

Hematite: Large mass of red ocher once found by Charles Butler.

Quartz (*Basanite*)—deep black pebble.

Chalcedony: rough botryoidal masses of a gray color; also brownish pebbles.

Chert: dark gray (almost black) pebble; grayish pebbles with a brown jaspery surface.

Drusy: botryoidal chalcedony masses have cavities lined with milky drusy quartz.

Jasper: brown pebble, red pebble.

Petrified Wood: dark gray limb section, donated by Messrs. Butler and Ward. $3\frac{1}{2} \times 8 \times 11\frac{1}{2}$ inches thick and weighs 4 lbs.

Rock xls: small xls in cavity of bluish chert.

Smoky: flawed gemmy mass in granite pebble. (see biotite)

Fossils: white shell (broken—looks like large brachiopod) whose center is a gray chert.

Large dark gray coral.

Big fossil tooth (Mastodon?) — 6 inches long (in office).

About 500 feet further, from the pit, Blue River is crossed, and 500 ft. further, we turned right on U.S. 77.

3588.0 miles—Nebraska line crossed on U.S. 77.

3611.0 miles—Beatrice, Nebr., on U.S. 77 (nice town). Blue River crossed again.

3630.0 miles—Cortland on U.S. 77.

3652.0 miles—Lincoln (State Capitol);

we stopped so I could pay the Capital a brief visit of inspection. We also saw the University of Nebraska on N. 14th St.—nice red brick buildings.

3654.0 miles—We turn right on U.S. 6—the famous road which goes thru my hometown of Peekskill, N. Y.

3677.0 miles—Ashland, Nebr., on U.S. 6.

3680.0 miles—Beg. bridge over Platte River.

3680.5 miles—End of bridge over Platte River. We stopped at the end of the bridge, so I could collect some sand from the river (which here is the east side). The following pebbles were found here: brownish limonite, reddish microcline, tiny silvery muscovite flakes in pegmatite, grayish to brownish orthoclase, and quartz (grayish chalcedony, gray chert, brown, also red jasper, and smoky quartz).

3680.6 miles—Linoma Bathing Beach on right. Private, did not stop, and furthermore it was fenced in.

3688.0 miles—Gretna, on U.S. 6.

3702.0 miles—Boys Town (right). Nice layout.

3709.0 miles—Omaha, Nebr., (University of Omaha, Courthouse, etc. seen).

3713.0 miles—Beg. bridge over Missouri River (on U.S. 6).

3713.5 miles—End bridge over Missouri River in Council Bluffs, Iowa. At the end of the bridge in Council Bluffs, are 2 recreation centers—Dodge Park on right and Playland on left. We stopped in both places, 1st in Dodge Park, so I could collect a sand sample from Missouri River, and then in Playland for sandwiches and coffee. Here we take U.S. 75 and go north.

3738.0 miles—Harrison Co. line.

3741.0 miles—Missouri Valley—nice town.

3742.0 miles—Loess outcrop, 25 ft. high—back of Ward School in Missouri Valley. We saw many fine exposures of loess along U.S. 75 and especially in the 1st County (Pottawattamie) where the road cuts thru it, leaving vertical walls 25 or more feet high. Small rounded hills seen in loess. Loess is a yellowish, fine

grained, slightly calcareous, loamy clay. It was so hard that I had to use the pick to get a sample.

3796.0 miles—Woodbury Co. line on U.S. 75.

3811.0 miles—Sergeant Bluff (R.R. Station left). About 500 ft. further on is a large pit about 500 ft. to the right. We stopped to examine it—it was about 600 ft. long, 400 ft. wide, and about 100 ft. deep. From one of the men working I learned it was the Ballau Brick Yard. After collecting a few specimens, we continued on. The minerals found here were black masses of lignite showing wood structure; brownish masses and nodules of limonite; and small round concretions of pale brassy marcasite. The marcasites were common; one large one was found but it was decomposing and coated with white efflorescences of melanterite. Red granite pebbles also seen.

3818.0 miles—Sioux City, Iowa. This is a nice city but what I remember best is the delicious root beer we obtained on its northern outskirts—a big mugful for only 10c.

3819.0 miles—We went too far so turned around and turned right on U.S. 77, heading for nearby South Dakota.

3829.0 miles—South Dakota line on bridge over Big Sioux River. About 300 ft. past the bridge in Stevens, S. D., a dirt road led off to the left—sign here "Streeter Beach" and out of curiosity we tried to find the beach. We went down one road, then another, crossed over to still another, but the beach just could not be found. We finally reached the Missouri River, at the end of a dirt road, where we found huge trucks dumping pinkish quartzite on stock piles. I was told that the quartzite came from Spencer, McCook Co., S. D., and was being used by the U.S. Government in the river for erosion control.

We had wasted so much time in trying to find Streeter Beach, that we decided to give up going further into South Dakota, but to return to Iowa.

3835.0 miles—Quartzite dump on Missouri River.

3838.0 miles—S. D. end of bridge over

Big Sioux River. Here we stopped so I could collect a sand sample in S. D. (Stevens, Union Co.). Black pebbles of basanite, gray pebbles of chert, and brown pebbles of limonite were found here along the bank of the river.

3838.2 miles—End of bridge in Iowa.

3844.0 miles—Toll bridge to Nebraska (on right) in Sioux City.

3847.0 miles—Stopped again for another root beer (on U.S. 75).

3871.0 miles—LeMars—we take Iowa 33.

3873.0 miles—Cross Floyd River, (25 ft. wide).

3912.0 miles—Osceola Co. line on Iowa 33.

3915.0 miles—Ashton (big sand bank, 300 ft. to right—did not stop).

3930.0 miles—Minnesota State Line (Iowa 33 becomes Minn. 60).

3940.0 miles—Worthington. We turn right on U.S. 16—(5 pebbles of red jasper collected here in the terrain bordering the road).

3971.0 miles—Jackson, Minn.

3972.0 miles—Des Moines River crossed—100 ft. wide. No sand seen—river full of water.

3981.0 miles—Martin County line on U.S. 16.

4000.0 miles—Fairmont (Sisseton Lake on right). In Fairmont we have a very good subscriber, A. F. C. Heiser (Box 165). After some inquiries we located Mr. Heiser in his gun shop—he was delighted to see me as this was our first meeting. After a most pleasant hour's visit, which included a brief visit to Sisseton Lake (named after Sisseton Indian Tribe)—where I obtained a sand sample, we were on our way again heading for Minneapolis and St. Paul. We take Minn. 15 out of Fairmont. Soon after leaving Fairmont, a heavy thunder shower came up and followed us until we turned in for the night.

4056.0 miles—Mankato—nice town.

4067.5 miles—St. Peter. This was as far as we went that night as the thunder shower was extra heavy. We spent the night in the South Side Motel—had

cabin 5—\$6.00 for us two. It was a nice place.

Mileage for the day—601.5

Thursday, July 3, 1952

(13th Day of Trip)

4067.5 miles—South Side Motel. St. Peter is a nice town—we take U.S. 169 out of here.

4080.0 miles—Le Sueur County line, on U. S. 169. Mississippi River crossed, 100 ft. wide; town of Le Sueur at end of bridge.

4137.0 miles—Minneapolis, Minn.

4141.0 miles—(Beg. bridge over Mississippi River, E. Lake St.).

4141.5 miles—End bridge over Mississippi River E. Lake St. we turn left.

4145.0 miles—(University of Minn.) in Minneapolis.

We stopped to visit Joyce Bourne Kennedy, a cousin of mine whom I met for the first time. Royce had met her before. (she is his sister-in-law) Unfortunately I could not stay long as I was scheduled to attend the last day of the Mid-West Convention at Macalaster College in nearby St. Paul. So it was arranged that Royce, Joyce and her two boys would drive me over to Macalaster College, leave me, and then Royce would pick me up at 4 p.m. and we would continue our journey homeward.

The Convention was a most enjoyable one but for me, much too short, as I had arrived on the last day and would stay only a few hours. (see R & M. July-Aug. 1952, p. 338).

4178.0 miles—Macalaster College.—4 p.m.

4182.0 miles—State Capitol in St. Paul. A nice marble building—did not stop.

4184.0 miles—Union R.R. Station—we go under it. We take U.S. 10, 12, and 61 out of St. Paul.

4204.0 miles—Hastings on U.S. 10.

4207.0 miles—Limestone outcrop on left. 50 ft. long, 6 ft. high (on U.S. 10). Here we found xline grayish calcite in grayish limestone, also light brownish fossiliferous limestone that fluoresces bright brown under long wave light.

4208.0 miles—Lake St. Croix (big lake on left and adjacent to road).

4208.5 miles—Beg. bridge over St. Croix River—River 200 ft. wide; Prescott, Wisc., at end of bridge.

4212.0 miles—Limestone outcrop, left of road. It was 200 ft. long, 6 ft. high. Grayish aragonite incrustations on grayish limestone were collected.

4226.0 miles—Ellsworth, Wisc.—Courthouse on left.

4234.0 miles—Large road quarry to right, apparently abandoned—we did not stop.

4236.0 miles—Rush River on U.S. 10. The river is about 60 ft. wide and noticing a sand bar, we stopped so I could get a sample. The bar in the river was about 200 ft. long and 60 ft. wide, it contained many pebbles and among them I found cachalong apal (white incrustations on gray chalcedony); beautiful little bright red carnelian agates; good brownish chalcedony; brown jasper; and small boulders of good milky quartz.

4237.0 miles—Small quarry (road) to right—did not stop.

4243.0 miles—Small quarry (road) to left—did not stop.

4244.0 miles—Plum City on U.S. 10.

4246.0 miles—Big quarry (right)—did not stop.

4256.0 miles—Beg. bridge over Chipewewa River.

4256.5 miles—End bridge over Chipewewa River.

4335.0 miles—Black River Falls on U.S. 12.

4335.5 miles—Bridge over Black River 500 ft. wide; falls to left (dam at falls).

4348.0 miles—Millston on U.S. 12 (on the northern outskirts we saw sand about 100 ft. to left. It looked like small sand dunes—we did not stop).

4365.0 miles—Red Gables Court on the northern outskirts of Toma, Wisc., where we spent the night. Had cabin 2—\$5.00.

Mileage for the day—297.5.

Friday, July 4, 1952

(14th Day of Trip)

4368.0 miles—(Red Gables Court, Toma). We had gone to town, the night before, hence the difference in mileage.

4420.0 miles—Wisconsin Dells, left.

4430.0 miles—Baraboo, Wisc. A town famous for its Baraboo quartzite but—no rock was to be seen. Baraboo River, 100 ft. wide, crossed here.

4433.0 miles—Nicely banded rock (may be quartzite) in rock cut to left—about 100 ft. long and 15 ft. high. Traffic too heavy for us to stop.

4446.0 miles—Sawk City.

4446.5 miles—Beg. bridge over Wisconsin River—Dane Co. line.

4447.0 miles—End bridge over Wisconsin River (got sand sample here); also collected some good gray chert pebbles.

4471.0 miles—University of Wisconsin (right) on University Ave. in Madison.

4474.0 miles—State Capitol (white marble) on left in Madison. Nice big lake (Lake Mendota) in city. We drove along side of it for some distance.

4478.0 miles—We take U.S. 18.

4562.0 miles—Milwaukee—the largest city in Wisconsin. We toured the city, including its waterfront (it's on Lake Michigan) and then headed south for Chicago.

4564.0 miles—Milwaukee River crossed—200 ft. wide. We take U.S. 41 south out of Milwaukee.

4604.0 miles—Ill. State line on U.S. 41.

4653.0 miles—Chicago. We stopped at the home of another cousin, but as no one was in, we continued onward.

4658.5 miles—Crossed Chicago River—200 ft. wide.

4660.0 miles—Chicago Midway Airport on right.

4664.0 miles—Blimp "Stag Beer" anchored 200 ft. to left. Many people were inspecting it; we did not stop.

4685.0 miles—Chicago Heights—we turn left on U.S. 30.

4692.0 miles—Long's Motel on U.S. 30. We stopped here for lunch. Noting some crushed limestone around the motel, I inquired about its source and learned that it came from a limestone quarry at Thornton, Ill., 7 miles away. About 1000 ft. further on U.S. 30 is the Indiana State line, Dyer, Ind., is here.

4708.0 miles—Lake Eliza pleasure resort (right); picnic grove—lake not seen.

4717.0 miles—Valparaiso on U.S. 30; granite pebbles found here in nearby terrain.

4738.0 miles—Kankakee River—50 ft. wide crossed.

4759.0 miles—Plymouth (Courthouse, left).

4782.0 miles—Tippecanoe River, 50 ft. wide, crossed.

4784.0 miles—Warsaw, big lake (Pike Lake) on left.

4826.0 miles—Fort Wayne on U.S. 30.

4827.5 miles—Bridge over Wabash River, 300 ft. wide.

4848.0 miles—Ohio State line on U.S. 30.

4862.0 miles—Maddox Creek—10 ft. wide. Colorless drusy calcite on grayish limestone found in bank of creek.

4863.0 miles—Van Wert, Ohio, on U.S. 30.

4877.0 miles—Delphos, Ohio, on U.S. 30.

4878.0 miles—We take U.S. 30N.

4935.0 miles—Upper Sandusky. (Sandusky River, 100 ft. wide, crossed here).

4968.0 miles—Crestline. Spent the night here at the Modern Tourist Home (388 Wiley St., cor. Main).

Mileage for the day—603.

Saturday, July 5, 1952

(15th Day of Trip)

4968.0 miles—Modern Tourist Home, Crestline, Ohio—5:30 a.m. We take U.S. 30S.

4983.0 miles—Mansfield, on U.S. 30S; had breakfast here. Took U.S. 30 out of the city.

4992.0 miles—Ashland Co. line. A short distance further is the Charles Mill Reservoir. Here close to the road, is a little sand beach, 100 ft. long and 25 ft. wide. I stopped to collect some sand; also some pebbles among which were some red microclines.

4993.0 miles—Mifflin on U.S. 30.

5017.0 miles—Wooster on U.S. 30.

5040.0 miles—Massillon (100 ft. wide Tuscarawas River crossed), on U.S. 30.

5049.0 miles—Canton; we take U.S. 62.

5066.0 miles—Alliance (Mt. Union College—left).

5069.0 miles—Mahoning County line—on a detour.

5071.0 miles—Coal mine, left; did not stop.

5071.5 miles—Maple Ridge, on detour.

5075.0 miles—Westville on U.S. 62 (end of detour).

5082.0 miles—Salem; take Ohio 14.

5086.0 miles—2 pebbles found in terrain on Ohio 14, one was a brown limonite, the other was petrified wood (dark brown bark of tree on dark brown micaceous sandstone).

5088.0 miles—Washingtonville on Ohio 14.

5101.0 miles—Unity, Ohio—pebbles collected from terrain from road cut, the most interesting was muscovite as tiny silvery flakes in brownish sandstone. We detour left in Unity.

5103.0 miles—Turn right on Ohio 341.

5104.0 miles—Penn. State line on Ohio 341.

5105.0 miles—Beg. Penn. Turnpike, 10:15 a.m. Tollhouse here.

5122.0 miles—Coal mine, 500 ft. to right—did not stop

5136.0 miles—Oil well, 100 ft. to left—did not stop.

5151.0 miles—Big coal mine to right—did not stop.

5205.7 miles—Beg. tunnel thru Laurel Hill.

5206.6 miles—End tunnel thru Laurel Hill.

5228.7 miles—Beg. tunnel (Alleghany Mt. Tunnel).

5229.9 miles—End tunnel.

5270.0 miles—Breezewood. An exit is here and we went thru it (2:45 p.m.). Toll \$1.65. We take Pa. 126 and go south.

5293.0 miles—Warfordsburg on Pa. 126; big quarry over 1000 ft. to left—we did not visit it. U.S. 522 joins here.

5296.0 miles—Maryland State line. On U.S. 522.

5297.0 miles—Limestone outcrop on left—75 ft. long and 25 ft. high. White xline calcite in dark gray limestone was collected.

5297.3 miles—Beg. bridge in Hancock, Md. "Hancock Bridge."

5298.0 miles—Beg. bridge over Potomac River—200 ft. wide.

5298.5 miles—W. Va. line on bridge.

5298.7 miles—End of bridge in W. Va. thru shale at end of bridge in W. Va.—on U.S. 522.

5310.0 miles—Penn. glass sand quarry on right. My sketch of this working got mislaid but if I remember correctly this is a huge pit, 1,000 feet or more in length with steep walls 100 ft. or more high. Aside from a sand sample I collected also drusy quartz (tiny colorless rock xls) on brownish sandstone; shaly, dark gray limestone; and gray sandstone.

5310.0 miles—Penn. glass sand quarry—we turn around. Note—deep rock cut thru shale at end of bridge in W. Va.—much brown limonite seen.

5322.0 miles—End bridge in Md., we turn right.

5322.3 miles—In Hancock, Md., we take U.S. 40.

5338.0 miles—Small limestone exposure, 5 x 5—right side of road. The most interesting specimen collected here was limonite which occurred as brownish earthy incrustations on dark gray limestone.

5339.0 miles—Hagerstown (R.R. Station on left).

5350.0 miles—Top of South Mt. Elevation 1242 ft.

5362.0 miles—Frederick, Md., on U.S. 40.

5368.0 miles—Monacacy River—100 ft. wide—crossed.

5410.0 miles—Washington, D. C., Northern limits.

5412.0 miles—Royce's home—5:00 pm
Mileage for the day—444.

Sunday, July 6, 1952

(16th Day of Trip)

Spent the day in Washington, resting.

Monday, July 7, 1952

(17th and Last Day of Trip)

Got the 7:35 a.m. train (B & O R.R.) out of Union Station in Washington for New York and home.

World News on Mineral Occurrences

Items on new finds are desired. Please send them in.

Abbreviations: xl—crystal

xled—crystallized

xline—crystalline

ALABAMA—Grayish pisolitic bauxite occurs near Rock Run, Cherokee Co., Ala.

ARIZONA — The following letter, dated Aug. 8, 1953, comes from Henry A. Koctum, Box 1107, Superior, Ariz.

"I am a rockhound, have done some prospecting and worked at various mines in Arizona both as miner and diamond driller. At present am employed at Magma Copper Company's mine here in Superior. No doubt you are familiar with their wonderful bornite and stromeyerite. I'm enclosing a short item on the last place I worked before coming here.

"For the collector of lead minerals, the Red Cloud Mine in Yuma Co., Ariz., is of considerable interest. Besides the common minerals such as galena, cerussite and anglesite there are the scarcer varieties including wulfenite, crocoite, and vanadinite. These occur in a vein of banded barite and fluorescent manganiferous calcite with quite a bit of fluorescent willemite and some fluorite and argentojarosite. The wulfenite is the bright reddish-orange variety and according to Dana's *MANUAL OF MINERALOGY* the mine is noted for its exceptionally good crystals.

"In the late 1800's miners eked out a living digging out the high grade streaks of silver ore which they carried out of the shaft in rawhide pack sacks. Then the ore was packed on burros to the Colorado River where a smelter was located at Norton's Landing. Cottonwood and willow timber were taken back on the return trip to be used underground. Some of this still remains in the workings, well preserved by the hot, dry climate. After the end of steamboat transportation on the Colorado River efforts to work the deposit failed due to lack of roads and the bats remained in possession until World War II revived in-

terest in the scarce, vital metals it contained.

"Today the mine is reached by a barely possible road from Martinez Lake, along the Colorado River and up into the Trigo and Chocolate Mts., one of the most barren and desolate regions in the state of Arizona."

ARKANSAS—Magnet Cove in Hot Springs Co., Ark., is world famous for its many minerals. It is a small community in central Arkansas but from now on may begin to grow as last September a factory started operations.

Rubarite, Inc., a newly formed company which produces a new synthetic rubber product for use in rubberized asphalt for paving and other purposes, started full scale production at Magnet Cove, early last September.

Rubarite, Inc., is owned jointly by The Goodyear Tire & Rubber Company, The National Lead Company and Bird & Son, Inc.

CALIFORNIA—In the May-June 1953 issue of *R & M* we printed a most interesting letter from Gordon D. ViGario, 2231 Pine St., Bakersfield, Calif. This letter mentioned a number of minerals which he had collected from Searles Lake (a salt crusted brine lake) at Trona, San Bernardino Co., Calif. Another letter dated July 24, 1953, has also been received and it reads:—

"Please accept these small xls of gaylussite and pirssonite from Searles Lake, Trona, Calif.

"The foreman of the Searles Lake plant stopped in at Bakersfield to see us while he was traveling north. He was kind enough to give me some more of the lake minerals from Trona.

"He informed me that there was a new deposit of colemanite in Zabriski Canyon,

Death Valley (Inyo Co., Calif.). The colemanite occurs in large (3/4") xls. I have two such xls, and they are very good examples of this type of xl. It is too bad that he couldn't leave more, for I wanted to send R & M a specimen of a new mineral find.

"I have made arrangements with the foreman to go to Death Valley this Christmas. He says that we will be able to obtain some of the rare minerals that abound there. When I have these specimens, I will send a representative collection to R & M.

"In the future, I hope to obtain more specimens of tychite and northupite for trading purposes. At present I have just enough for my personal collection. When I obtain these minerals, I will mail you some xls.

"It is my hope to find some specimens of schairerite at Trona. This mineral is the rarest type to be found at that locale."

Both xls, gay-lussite and pirssonite, are loose, colorless, transparent, and 1/2 inch long.

COLORADO — Stewart Pickford, Steamboat Springs, Colo., informs us that opal is common (found as float) at Sand Mountain, Clark, Routt Co., Colo.

CONNECTICUT — A letter, dated Aug. 7, 1953, comes from Walter Busch, 43-32 Elbertson St., Elmhurst 73, N. Y. Part of it reads:—

"I will report on my trip to Connecticut and my visit with Richard Schooner of East Hampton, Conn. We spent the whole day in visiting as many localities as we thought were worthwhile. First we visited the famed Strickland Quarry (near Portland, Conn.) which is being worked presently. Fresh material is being constantly dumped on the dump. We were fortunate in finding columbite, cookeite, beryl, lepidolite and spodumene. Since all the water has been drained from the quarry, one won't believe the gigantic hole that was left by the feldspar operation, unless he actually visits the place. We then visited the Hale quarry in search of manganese dendrites which were

common in the past, but none could be had this time as the quarry was cleaned up of all rock. We then went to the Myron Case feldspar quarry which I believe few if any people know about. Here we found bismutite (the oxidation product of bismuth) and bismuthenite. Also some columbite and semi-gemmy beryl. The beryl is nicely xld here. Next we went to the old Cobalt Mine and secured some scorodite, that altered arsenopyrite mineral. An interesting visit was paid to the Rock Landing No. 1 quarry. Here in an old wall was exposed the ends of several large columbite xls, some 4 inches across but as there were some signs "Danger-Keep Out," it was with much regret we left this place. There is not much one can do with out drilling tools and powder. This quarry was famous for its yield of columbite. Next we went to the old Gillette quarry. Someone has been doing some blasting there recently and evidently they ran into several good pockets. Some tiny microlite xls are found in a smoky quartz at this locality. Our last trip of the day was to the old Lithium mine where we secured excellent specimens of lepidolite. We had to laugh when we remembered that so many people scurry around to find a chip of lepidolite on a dump, when there are tons of this material here. One boulder must have weighed about 5 tons. There must be a probable 100 tons of lepidolite on the dump here. I also wish to state that some scheelite has been found at the Strickland Quarry in a boulder. Some time in the near future we hope to go on an excursion for iolite reportedly being near Norwich and also to see if any monazite xls can be found in that locality."

Another letter from Mr. Busch, dated Sept. 15, 1953, reads:

"Just dropping you a few lines about what is doing at some of the various pegmatite workings in Connecticut. Paid a visit to Branchville Mica Mine and found no one there. The place has a look of abandonment. The pit where they were working for mica is rapidly filling up with water. I guess they about exhausted all the workable mica. They had

a shovel at the other end of the quarry trying to pick up the mica mineralization, but no luck. There is some nice spherical or globular mica to be found. Also some nice radiating black tourmaline. There is some spodumene var. cymatolite. Also a little rhodochrosite. I found a nice chunk of cyrtolite, but that is rare. Probably other minerals if one can look closely. At the Strickland Quarry I hear that they are going to sink 80 feet deeper. They are really mining for that mica. They got a tunnel and a stope way down at the bottom of the quarry. Been over that dump at night with a violet light but could only find a little manganoapatite that fluoresces."

A third letter, dated Oct. 5, 1953, has been received from Mr. Busch.

"Saturday Oct. 4, 1953, Richard Schooner and I went out to near Ashford, Conn., as Richard heard from a friend interested in minerals that some nice iolite was being found in a new road cut that was recently blasted to make room for widening the Wilbur Cross Parkway. We started from Middletown, passed East Hartford and proceeded up the Wilbur Cross Parkway. A few miles out of East Hartford and on the right, there is a strong outcrop of a garnet schist. The schist is unusual as it's very hard and has the gleam and shimmer of molten silvery metal. After examining many recent road cuts, we finally found the one we were looking for. The rock was blasted Friday and as there is no work on the road Saturday, no rock was moved. Here was a veritable bonanza of iolite. Tons and tons of rock carrying iolite in pale violet to light blue crystals $\frac{1}{4}$ inch to one inch in size generously distributed through the rock. The formation in which the iolite occurs looks like a white crystallized schist. The iolite and associated moonstone have intruded in some places in the white crystalline schist as lenses several feet wide. As this outcrop will be blasted down to the level of the road and obliterated in one or two days time, I made the most of the opportunity by carting several hundred pounds of this material home in my car.

This was an opportunity which will never prevail again of obtaining such fine material. I have never seen the iolite and moonstone that was found in a road cut near Bigelow Pond in Union, Conn., but I presume the material is identical. I have been looking for this elusive material for several years now, and was never successful in finding any until now. I believe that iolite is the rarest of Connecticut's commoner minerals. If any of your readers are interested in this material, I have some nice specimens at reasonable prices."

DELAWARE — Over 125 years ago Samuel Robinson, M. D., in his "Catalogue of American Minerals with their Localities" (Boston, 1825) listed this item for Delaware:—

"Almandite or Precious Garnet, found on Mr. Dickson's farm in splendid and highly translucent dodecahedrons, in a vein of graphic granite."

Mr. Dickson's farm was in Wilmington, New Castle Co., Del.

FLORIDA — Small specimens of a most interesting conglomerate found near Mayport, Duval Co., Fla., have been sent in by Capt. F. J. Smith, P. O. Box 905, Mayport, Fla. These are dark gray masses made up of large white sea shells (bivalves) with tiny smoky quartz pebbles, tiny pink to red garnet pebbles, and some larger pebbles of brown jasper. Some of the shells fluoresce light brown under long wave light.

GEORGIA — Loose xls of milky quartz, 2 x $3\frac{1}{2}$ inches in size, have been found at Phillpot's Ferry, Chattahoochee River, Heard Co., Ga.

IDAHO — In the Flint district of Owyhee County, Idaho, stibnite in lead-gray needles and lamellar masses occurs in the Rising Star mine.

ILLINOIS — A letter, date Sept. 7, 1953, from Bob Barnes, 3930 Brookfield Ave., Louisville 7, Ky., mentions a small box of minerals being sent us. A paragraph reads:—

"The second specimen is a selection of

fluorite octahedrons that I cleaved. The first of this month I spent a few days collecting with Johnny Mitchell of Golconda, Ill., in the Illinois fluorite district. Among others we visited the Victory mine, Cave-in-Rock, Hardin Co., Ill. While we were there one of the miners taught us how to cleave the fluorite into "diamonds" as the miners call them. Since I got home I've been working on some of the Victory Mine fluorite. My "diamonds" aren't perfect yet but I'm working on it."

Six "diamonds" were received varying in size from $\frac{1}{4}$ to $\frac{3}{4}$ inch and in color from golden-brown, pale purple and pale blue. We think they are very good.

INDIANA — Bob Barnes, of Louisville, Ky., sent us also a good quartz geode (half section) that is lined with drusy rock xls and colorless calcite xls with a brownish tinge. The paragraph in his letter in reference to the geode reads:-

"The last specimen sent you is a geode that I collected a mile north of Salem, Washington Co., Ind. The geode is lined with very small clear to white quartz xls on which are several larger calcite xls both singly and doubly terminated. The whole makeup is interesting and unusual and to my way of thinking quite beautiful." (See Kentucky.)

IOWA — "Was prowling around a limestone quarry S. W. of Tracy (Marion Co.), Iowa, looking for fossils and on the dump were selenite xls, perfectly formed. The largest found measured 5 x $2\frac{1}{2}$ x 1 inches. The xls were diamond shaped with the edges beveled. I am sending you a smaller one."—item in letter dated Aug. 28, 1953, from Amel Priest, Peru, Iowa.

Two xls were received. They were of good quality, with beveled edges, colorless, partly transparent—their transparency were marred by some grayish clay inclusions.

KANSAS — Dark brown nodules of pyrite showing many corners and forming attractive specimens, have been received from J. R. Messamore, Colby, Kans.

"To find pyrite like those I am send-

ing you, go to Quinter (Gove Co., Kans.) on highway 40 to the first intersection west of Quinter, check your speedometer and go 16 miles south, 4 east and then $\frac{3}{4}$ south where there is blue shale on both sides of the road. The pyrites are in that. I have never found them in any other formation. They are scarce and it takes lots of hunting, but they can be found."—paragraph in Mr. Messamore's letter, dated Aug. 27, 1953.

KENTUCKY — A letter dated Sept. 7, 1953, comes from Bob Barnes, 3930 Brookfield Ave., Louisville 7, Ky. A paragraph reads:—

"I am sending you another small box of 3 local specimens that I collected during the summer. The first specimen is a mass of grayish-white barite with pieces of bright shining galena scattered through it. I collected it from the Lockport Mine, Lockport, Henry Co., Ky. I've visited the mine on several occasions and every time I've brought back something new or different for my collection. Some of the minerals I've collected there include sphalerite, strontianite (rather rare) and occasionally some galena octahedrons in calcite. Although the varieties of minerals found isn't too great, the different forms are very "interesting."

LOUISIANA — What is believed to be Louisiana's most important mineral locality, a gravel pit at West Monroe, Ouachita Parish, was recently brought to our attention by Courtney R. Lewis, Box 53, Mt. Holly, Ark. Here is Mr. Lewis' letter, dated Sept. 7, 1953:—

"I am placing in the mail a package containing a few rock specimens I collected in Ouachita Parish, Louisiana. The location is about a quarter mile south of U.S. Highway 80, just out of West Monroe, Louisiana, as one leaves the city traveling west.

"The specimens were collected from a huge stockpile of washed gravel at the gravel pits on the property of the Monroe Sand and Gravel Company. The large "hills" of washed gravel can be seen from the highway. The gravel is used as road ballast, in asphalt road surfacing and

various concrete work as a filler.

"I will leave to you the identification of the various specimens I am sending because of the fact that I am just an amateur rock collector.

"I have not tried cutting and polishing any of the material as yet but a friend of mine, Mr. T. E. Bryant of Junction City, Arkansas, has cut a few very nice cabochons from material he collected when he and I visited the location.

"Rock collectors are 'few and far between' in this section. So are the mineral localities. There are no rock outcrops closer than the hills of the Ouachita and Ozark Mountains.

"I hope you will find these specimens of interest. For the benefit of any rock collector traveling U.S. Highway 80 near West Monroe, Louisiana, 'Thar's very nice material in them thar hills of washed gravel.' "

Among the minerals (all pebbles) received from Mr. Lewis were:—

Agate: brownish, cellular masses; also reddish-brown lustrous masses that should take an excellent polish.

Asphaltum: black lustrous masses in dark brown limonite.

Carnelian: brownish-red gem quality pebble but only 1/4 inch in size.

Chalcedony: brownish, also gray, gem quality pebbles.

Garnet (Almandite): small dark red grains cemented by iron onto a brownish jasperized chert.

Geode: gray quartz geodes, 2" in diam., one unbroken, another a half-section which is lined with small rock xls.

Jasper: brown, also red pebbles—could take a very good polish.

Limonite: see asphaltum.

Petrified Wood: dark brown pebbles.

Fossils: 5 fossilized pebbles, of which 3 are brownish jasperized corals, and 1 brown jasperized crinoid.

MAINE — Dr. L. W. Carpenter, Limerick, Maine, has sent in 2 specimens which he had collected at Newfield, York Co., Me. One of the specimens is sunstone (oligoclase), associated with a black platy mass of columbite in dark gray

nephelite. The sunstone is gray oligoclase with spots so thickly aventurine it looks copper-red and is about the best sunstone we ever saw from an American locality.

The other specimen is sodalite as a bright blue mass on dark gray nephelite.

Here is Dr. Carpenter's letter, dated Aug. 11, 1953, telling us about the finding of the above specimens:—

"This is to report what I believe to be a new sodalite location. Last fall (1952), Forrest W. Carpenter and I while prospecting the stone walls, in Newfield, Me., noticed a blue-gray deposit on several of the wall boulders. Chipping these weathered spots, we found it to be blue sodalite. We broke up several of the boulders, and collected some very good specimens, some of which we have given to, or exchanged with, several rock-hounds.

"At the time we discovered this sodalite we were unable to find any *in situ* and therefore did not report it. We supposed the boulders to be erratics. We had not been there for nearly a year until Aug. 4, 1953, when Mrs. Carpenter and I, together with Mr. and Mrs. James Lese-man of 119 Parrott St., So. Portland, Me., felt it was time to look the place over. We found that since last fall a well had been drilled, and the cellar and a foundation area had been blasted out, about 100 yds. away, on the side of the hill. The rock blasted out proved to be the same as the rock in the wall, a yellow green nephelite with much soda, and judging from the subconchoidal fracture, a considerable percentage of silica. We found the sodalite to be in thin veins, for the greater part, but have several good specimens from 1/4 to 1/2 inches in thickness. We have found 4 colors, white, blue, light red, and a very little green. The location is on Straw Hill, Upper Newfield Rd., leading from Limerick, Me., to Newfield, Me. and approximately 4 mi. from Limerick Village. The land is owned by Arthur Carpenter, Jr.

"I am sending you two specimens—blue and light red. (The light red turned out to be sunstone.)"

MARYLAND — Beautiful white xls of laumontite on dark green chlorite have been found at the Milford trap quarry at Rockdale, Baltimore Co., Md.

MASSACHUSETTS — Beautiful green xls of epidote associated with xls of black tourmaline have been found in gneiss at Athol, Worcester Co., Mass.

MICHIGAN — A pale green xl of beryl associated with large dark silvery plates of muscovite and red microcline has been sent R & M by W. P. Pratt, Box 164, Williamsville, N. Y. The specimen was collected by Mr. Pratt at a quarry N. E. of Randville, Dickinson Co., Mich.

MINNESOTA — Dark brown pebbles of chalcedony have been found in the State gravel pit, located on State Highway 83, between Judson and Cambria, Blue Earth Co., Minn. Some pebbles have been donated to R & M by A. F. C. Heiser, Box 165, Fairmont, Minn.

MISSISSIPPI — Bluish-gray pebbles of chert occur in the terrain at Pearlington, Hancock Co., Miss.

MISSOURI — The following letter, dated Aug. 21, 1953, and addressed to Commander John Sinkankas, Editor of "The Amateur Lapidary," comes from Clarence M. Jenni, Col. Eng. Res., 3129 Chadwick Drive, Los Angeles 32, Calif.

"I read with interest your article on hematite in quartz. About 15 years ago I collected similar material at the old Cherry Valley Iron Mine at Stanton, (Franklin Co.,) Mo. This is an old sink hole deposit in deposits of middle Paleozoic Age. There is much marcasite, pyrite, hematite and principally goethite and limonite. The xls were a group of about 4 x 6, some of them light amethyst in color. All are rutilated with long golden needles, possibly rutile. Many light xls, (platy) of hematite are in all the terminal faces apparently along phantam faces. In addition there are a few groups of light brown, very acicular xls radiating from a common point. On the reverse bright red and light yellow amorphous iron minerals appear through the quartz."

MONTANA — A subscriber renews his subscription, sends in some good minerals and also sends in a series of interesting notes. These notes, dated Aug. 29, 1953, from Ted Eyde, 3100 Sheridan Ave., Butte, Mont., read as follows:—

"Enclosed is a money order for \$3.00 to renew my subscription to ROCKS AND MINERALS. I think ROCKS AND MINERALS is the finest magazine published for the mineral collector. So often agates are over-stressed in many magazines published for the mineral collector. It seems as if many magazines for the collectors (for the mineral collector) have completely lost their original purpose and devote too much space to agates. I am perhaps prejudiced against agates but they actually are only one variety of minerals. I'm sure glad that R & M does not over-stress agates. You're doing a swell job.

"I'm starting my junior year at Montana School of Mines; majoring in geological engineering. I work in the Butte mines during the summer vacation and two night shifts a week during school. This summer I have been working at the Lexington Mine; this is the shaft through which the famous Alice mine is being worked. I found a specimen of pyrrargyrite (dark ruby silver) on the 1000 level on the North State Vein. This is a very rare mineral in the Butte district. Most of the silver is either native (wire silver) or most always in silver bearing galena. The breast of the North State vein is 50 ft. wide from foot to hanging wall, and it is running 135 oz. of Ag, 10% Cu, 5% Pb and 20% Zn.

"I am sending you some rhodochrosite crystals and a specimen of rhodonite. Rhodonite is the chief gangue mineral at the Lexington. It is frequently found in large pockets; portions of many veins especially the Rock Island may consist almost entirely of rhodonite. Although the manganese can not be recovered from rhodonite, it often has a high silver content at times as much as 30 oz. per ton. The rhodonite is from the 200 level on the Lexington Vein. The rhodochrosite crystals are from the 800' level in the

Scarem Vein (both in the Lexington Mine, Butte, Mont.)

"Butte and the area surrounding it is a collector's paradise. There are approximately thirty minerals readily available to the average collector and many more to the persistent collector. I want to invite any collectors passing through Butte to stop and visit. I'll be glad to personally guide them to many mineral localities in and surrounding Butte."

NEBRASKA — Mrs. J. G. Carnahan, Orella, Gage Co., Nebr., has sent in an assortment of minerals which are found in her area. Among the specimens received (all quartz) were:—

Agate—gray masses; also dark brown pebbles.

Chalcedony—smoky gray botryoidal masses found in geodes. The chalcedony fluoresces yellow under the long wave light.

Petrified Wood—dark gray agatized mass with rounded edges (a large pebble.)

NEVADA — An assortment of interesting minerals among which were pebbles of wonderstone (banded brown and maroon) and also a large slab of brownish and grayish wonderstone showing a fossil leaf, were received from the Fallon Rock and Gem Club, Fallon, Nev. The following letter, dated Aug. 31, 1953, comes from a member of the Club, Mrs. Ivy W. Ringstrom, Fallon, Nev.

"We are beginning to discover that this area is a collector's paradise. As usual in the open desert country, distances to many of the collecting areas are great—50 to 150 miles, so we aren't able to visit these areas too frequently. The wonderstone area provides good collecting for polishing material—large pieces for bookends are available—the pebbles which have been rolled and polished on the ancient beaches; the fossil leaves and reeds and grasses; rarely fish or snail fossils.

"The wonderstone which is supposed to be silicified tuff, is easily reached. The Fallon Rock and Gem Club has staked a claim which is open for all collectors. There is a mountain of it and there are

many grades and colors. One specimen we saw taken out was a perfect bulls-eye framed in a square. The location is in Churchill Co., 12 miles east of Fallon on U. S. 50 and 6 miles on a dirt road to the claim. Anyone interested and in this vicinity should contact members of the club for more specific directions—or the Chamber of Commerce.

"We are situated in the bottom of the prehistoric Lake Lahontan basin. The surrounding hills, and there are many, abound with petrified wood (not all good quality) jaspers of all colors, agate and agate jasper combinations, and the wonderstone. The wonderstone is of upper middle Tertiary origin. The fossils in the wonderstone are of this period."

NEW HAMPSHIRE — Jonathan Kapstein, 248 Morris Ave., Providence, R. I. in his letter of Aug. 20, 1953 sends in this item:—

"I found a large crystal of Microcline at the Valencia Mine, West Rumney, Grafton Co., N. H. The crystal was $2\frac{1}{2}$ by $1\frac{1}{2}$ ". It was too heavy for me to cart away—so I am passing it on to any collector who can take it."

A letter dated Aug. 23, 1953 comes from Walter Busch, 43-32 Elbertson St., Elmhurst 73, N. Y.

"Just dropping you a few lines to let you know what is doing in the mineral localities in New Hampshire. Last week I took a run up to the Ruggles Mine at Grafton Center. They say that they did not hit a good pocket or wall of uranium minerals in some time. I also hear that they are abandoning the present location and going to work around the hill. As you know the Ruggles Feldspar Mine is located high up on a hill. I did find one or two pieces of gummite and also a big boulder filled with autunite. I would have liked to put my violet light on the dumps at night but was told everyone had to leave the quarry at 4 p.m. I took many interesting pictures of the quarry. In Westmoreland I visited the old fluorite mines, where some green fluorite may be gotten with some pounding. Some of it will fluoresce a light blue. These fluorite

mines are hard to locate as they are set back in the woods and no one in the immediate vicinity to ask directions."

NEW JERSEY — Chocolate-brown xls of titanite have been found in pinkish pegmatite in a road cut near Vienna, Warren Co., N. J.

NEW MEXICO — The following letter dated Aug. 14, 1953 comes from Carl B. Richardson, 3302 Terra Alta Blvd., Tucson, Ariz:—

"Yesterday my son and I returned from Grants, (Valencia Co.,) New Mexico, where we had done 10 days geological work. This will give you a note for your column on mineral occurrences by states. It's interesting because Grants is located on Highway 66 about 80 mi. W. of Albuquerque.

"Most interesting are the uranium mines near there which produce the yellow powdery type of uranium minerals, but the A.E.C. geologists say that, strangely, none of the minerals are carnotite. The common mineral produced 10 mi. N. of Grants from the Todilto-limestone (middle Jurassic) is tyuyamunite. It occurs in patches up to an acre in size and 2 to 20 feet thick. The ore occurs usually as a yellow powder along bedding and joint planes. The richest spots are red and black where pitchblende seems to occur in a matrix of psilomelane and hematite. Other rare uranium minerals are autunite and maybe schrockingerite. In the limestone also occur rather rare barite, pyrite, limonite, pyrolusite, fluorite.

"West of Grants toward Gallup are several mines in the Morrison (upper Jurassic) where the minerals are called by the A.E.C. Meta-tyuyamunite and the scarcer fluorescent Meta-autunite. These latter minerals occur in sandstone as carnotite does in other localities.

"West of Grants in the Zuni Mountains there are many fluorite mines (veins in pre-Cambrian granite.) Also in the same mountains in an old copper mine. Samples reported to come from there are a light blue powdery mineral (probably azurite) occurring as pea-sized flattened patches in mica schist.

"North of Grants are pumice and perlite mines on the slopes of Mt. Taylor and visible from the town all around Grants are numerous lava flows (Tertiary and Quarternary). Some of the later lavas along the edge of the highway show enormous collapsed bubbles and both ropy and scoriaceous structure. On highway 53 twenty miles southwest are a series of interesting cinder cones along the road.

"The locality is not exactly a collector's paradise but it's worth mentioning because so many of your readers pass right through the town on their vacation trips.

"Beautiful specimens of some of these are on sale in the Grants Cafe (west of town, north side of highway) at 25c each, the money being raised for a new public library."

NEW YORK — Peter Krump, Box 211, Salisbury Center, N. Y., in his letter dated Sept. 12, 1953, writes:—

"Sunday I went out alone in the township of Manheim (Herkimer Co., N. Y.). I went as far as I could go, and I did get soaked, it rained pretty hard, but I got what I went after, and no rain will stop me once I make up my mind.

"Am enclosing a few specimens I picked up in that vicinity.

"Rocks and Minerals Magazine is the best for beginner rock hound or the lonely prospector, who really should have a copy in his pack. He will find it interesting; a great cheerer upper, when you find yourself all alone way back in them thar hills—makes the time slip by. I advise you fellers to read one."

"Among the minerals received were dark gray masses of labradorite and drusy rock xls on dark gray limestone.

NORTH CAROLINA — Jeffrey Boehlert, 135 S. Finley Ave., Basking Ridge, N. J. has done some collecting at the McKinney Feldspar Mine, (near Little Switzerland) Mitchell Co., N. C.

"Under separate cover I am sending a specimen of sphalerite. The one good specimen of pyrite was lost on the way home. The sphalerite does however have some pyrite in it. Other minerals found at the mine are apatite, autunite, gummitte,

torbernite, meta-torbernite, uraninite, and hyalite (fluorescent under short wave light).

"Nice specimens of beryl have been found at the Crabtree Mt. Emerald Mine (R & M—Nov.-Dec. 1952 p. 602). I am sending a beryl with the sphalerite."

Lustrous black xline masses of sphalerite coated with yellowish uranophane and associated with small xls of pyrite in massive smoky quartz was the McKinney specimen.

Pale brownish xl of beryl in whitish pegmatite comes from the Crabtree Mt. Emerald Mine located on Big Crabtree Mt., Mitchell Co., N. C.

NORTH DAKOTA — S. T. Parke, Sterling, N. D., in his letter of Feb. 15, 1953 writes:—

"Am sending you by parcel post several pieces of diamond drill cores from our new oil wells. They are all from 4000 to 8000 feet down."

From the Patterson well, located in Burleigh Co., 15 miles N. W. of Sterling, N. D., we received a 3½ inch diam. core of dark gray compact dolomitic limestone.

OHIO — Gold in placers has been mined about 7 mi. east of Batavia, Clermont Co., Ohio.

OKLAHOMA—In Comanche County, 7 miles N. W. of Cache, Okla., in the south edge of the Wichita National Forest, large xls of zircon occur in a pegmatite dike. The dike, about 30 feet wide and containing a considerable number of the xls, is about 2 miles S. W. of the Forest headquarters.

Some loose, dark chocolate-brown zircon xls from the locality have been donated to R & M by Walter Busch, of Walt's Mineral Shop, 43-32 Elbertson St., Elmhurst 73, N. Y.

OREGON — An acicular reddish-brown tourmaline has been found at the old Copperopolis Copper Mine, Quartzburg District, Grant Co., Oregon.

PENNSYLVANIA—Some few months ago W. Harold Tomlinson, 260 N. Rolling Road, Springfield, Mass., sent us

a specimen of most interesting black graphite rosettes. The label with the specimens reads:—"Graphite showing crystal rosettes from Anselma (Chester Co.), Pa. This occurs in or near pegmatite veins in the Pickering Gneiss in a quarry that was worked (at much expense and no returns) by the government some years ago. The gangue at this point contains nice kaolin xls and also gibbsite."

RHODE ISLAND — Dark brownish xls of grossularite garnet associated with calcite and actinolite has been found at Copper Mine Hill, Providence Co., R. I.

SOUTH CAROLINA — A box of minerals and letter dated Sept. 4, 1953, have been sent in by Paul H. Benson, Jr., P. O. Box 1211, Florence, S. C. The letter reads:—

"Under separate cover, I am sending you several pieces of petrified wood as well as some other things my boys and I have found. The boys, Buddy and Lee, became interested, two years ago, in Indian relics. We started roaming the fields, and have found many ancient campsites. We ran across this location near High Hill Creek which forms part of the boundary between Florence and Darlington Counties, South Carolina. Some of the wood shows bark and knots—pieces run from very small to 150 pounds. In the same location, we found sedimentary marine life pieces. The pieces entitled agate (?) was also found here. The black flint or chalcedony came from an Indian campsite nearby. We have several hundred arrowheads made from this material in sites many miles apart, so we presume that it is an import by the Indians for the purpose, little of it being found other than in their old campsites."

A number of specimens were received, all coming from Darlington Co., High Hill Creek section, among them were:—

Chert—gray-white banded mass.

Chalcedony: bluish-gray, partly banded, in cellular quartz. Small sections of the banded material is agate.

Drusy quartz: coating chalcedony.

Petrified Wood: gray to dark gray sections up to 1 x 2, good material but

too porous to take a nice polish. One piece is coated by drusy quartz, another by yellow limonite, while a third (part of it) fluoresces pinkish under the long wave light.

SOUTH DAKOTA — Some few months ago we received from John P. Connor, Box 522, Armour, S. D., a specimen of buff colored compact limestone on which were beautiful black dendrites of pyrolusite.

The specimen was found along Elk Creek in Piedmont, Meade Co., S. D.

TENNESSEE — Bluish xls of pisanite have been found in the copper mines at Isabella, Polk Co., Tenn.

TEXAS — Mrs. C. C. Mason, 607 Prospect Amarillo, Texas, has sent in a number of specimens from her area of which two were dark brown petrified woods. One of the specimens was collected from a caliche pit, 2 miles west of Amarillo, Potter Co., Texas; the other from the Canadian River at Fritch, Hutchinson Co., Texas. Both specimens are of gem quality and so should take a good polish.

UTAH — Thick coatings of minute brilliant green xls of brochantite on bluish-green chrysocolla have been found in the copper mines at Frisco, Beaver Co., Utah.

VERMONT — Small brown xls of tourmaline have been found in the copper mines at South Strafford, Orange Co., Vt.

VIRGINIA — French Morgan, 2601 Brentwood Road N. E., Washington 18, D. C., in his letter, dated Aug. 22, 1953, writes:—

"I have another item to report for 'World News on Mineral Occurrences,' not a new mineral first reported from a state, but the first time it has been found in crystal form.

"Two years or more ago thaumasite was found at the Fairfax Quarry on Route 211, a short distance south of Centerville, Fairfax County, the first recorded find of this mineral in the state. During June, 1953, another blast along the vein uncovered crystals of this mineral, in addition to the massive material. While small

in size, masses of white crystals perched on prehnite make beautiful specimens. This appears to be the first time crystal thaumasite has been reported from Virginia."

WASHINGTON — Precious opal occurs filling cavities in basalt at Whelan, Whitman Co., Wash.

WEST VIRGINIA — From Robert Jones, 315 Race St., Cumberland, Md., we have received an amber colored translucent calcite xl, 1 x 2" in size. It fluoresces yellow under long wave light and was found on a farm near Petersburg, Grant Co., W. Va.

WISCONSIN — "I am sending some small samples of rock sent to me by a friend from Elkhart Lake (Sheboygan Co.), Wisc. He tells me that that part of Wisconsin was once the sea-bottom, and many fossilized sea animals, viz, snails, etc. can be found there. In fact he once sent me a nice assortment of fossils, but goodness only knows what I have done with same! In case you wish, to contact him his name and address are:— John J. Stoltenberg, Elkhart Lake, Elkhart, Wisc." Paragraph in letter dated May 30, 1953, from Fritz G. H. Carlson, 12 Beach St., Fairhaven, Mass.

The specimens, all pebbles or parts of pebbles, are as follows:—chert (dark gray, banded); jasper (red); limonite, yellow ocher (nice yellow tho thin mass); reddish granite; mica schist; limestone of various colors—gray, greenish, pink, pinkish quartzite.

WYOMING — In another letter, dated June 3, 1953 from Fritz Carlson, 12 Beach St., Fairhaven, Mass. he writes:—

"I am sending you some pebbles picked up by my son along some roadside when he went through Laramie (Albany Co.), Wyo."

The pebbles received are:

Epidote—greenish vein in flesh colored feldspar.

Quartz—(ferruginous — nice orange colored pebble.

Quartz (Chalcedony)—dark gray pebbles.

AUSTRALIA — A letter, dated July 31, 1953, comes from Kelvin C. B. Green, YMCA, Edward St., Brisbane, Queens, Australia. Part of it reads:—

"We have considerable mineral news of interest here. An acquaintance of mine has a mineral specimen classed corundum and as a gem it is classed A 1 at Lloyd's, being a flawless golden sapphire of 322 carats weight. He is quite embarrassed with riches and doesn't know whether to sell it to a Texas millionaire or to keep it for himself. It is uncut and just as Nature and the Last Glaciation have kept it. He found it in the Willows District of Queensland's Anakie Sapphire Fields, where some very notable gems have been found, including a red zircon bigger than a safety match box which I was called on to identify officially myself.

"Another very odd gemstone owned by a local dealer in opals, is the rib bone of a Plesiosaurus converted to opal. This was found at Lightning Ridge (N.S.W., Australia) and some vandal broke out a part of it because it was opal suitable for gem cutting. Wouldn't it slay you?"

CANADA—Another interesting specimen of molybdenite has been received from John W. Edwards, 305 Avenue Road, Toronto 5, Ont., Canada. This molybdenite is said to be gold bearing and occurs as small lead-gray masses in smoky quartz and pyrite. It comes from a quartz vein in Terry-Dunsmore Township, near Kirkland Lake, N. Ontario, Canada.

ENGLAND — Magnificent xls of black tourmaline were once found in a granite quarry at Chudleigh near Bovey Tracey in Devonshire, England associated with fine translucent xls of white apatite.

GREECE — Pinkish, botryoidal masses of rhodochrosite, associated with rock xls and pyrite xls on massive quartz was sent us some few months ago by John Lavranos when he formerly resided in Athens, Greece; he now resides in South Africa (P. O. Box 10257, Johannesburg, Transvaal).

The locality for the rhodochrosite is Chalcidice, Macedonia, Greece.

GREENLAND — We are indebted to T. O. Lisle, 11 West 42nd St., New York 36, N. Y., for the following item taken from the New York Times (New York City).

"Copenhagen, Denmark Sept. 28, 1953 —Seven British explorers arrived here today from a remote part of Greenland. They were led by Professor Lawrence Wager of University College, Oxford, England. The Professor and six geologist colleagues arrived here abroad a small Norwegian sealer, the Jopeter, with three tons of rock consisting of 3,000 valuable items of specimens.

Professor Wager's Oxford and Manchester University team had been studying what the explorers called the "geological masterpiece of the world. "It is the 45,000,000—year old "intrusion" of granite-like elements into the basalt lava on the Skaergaard Peninsula, 300 miles north of the east Greenland capitol of Angmagssalik."

PUERTO RICO — A compact gray mass of calcite which fluoresces tan under the long wave light and which was found at Ponce, Puerto Rico, has been sent us by David A. Burgess, Box 6667, Loiza Street Station, Santurce, Puerto Rico.

SCOTLAND — Pectolite compact in fibers and greenstone; color, yellowish-white with a ting of green has been found in Bishopston, Renfrewshire, Scotland.

SWEDEN — Several specimens of fluorite from a fluorite mine at Gladsax, 5 kms. west of Simrishamn, Skane Province, Sweden, have been received from Gerhard Koppen, Skanegaten 3, Nybro, Sweden. The specimens are purple, colorless and pale green masses, the latter associated with whitish calcite which fluoresces red under the long wave light.

A Subscriber as Long as He Lives!

Editor R & M:

Out of the four mineral magazines I subscribe for **ROCKS AND MINERALS** is the very best. I hope I shall be able to subscribe for it as long as I live as I enjoy every page in every issue. Only wish it came out every month.

Harold P. Post
Chesterfield, N. H.

Sept. 24, 1953

THIRD ANNUAL CONVENTION EASTERN FEDERATION OF MINERALOGICAL AND LAPIDARY SOCIETIES

PATERSON, N. J. — OCTOBER 8, 9, 10, 1953

By MARIAN BROWN CASPERSON

9-11 Hamilton Street, Paterson 1, N. J.

For the second consecutive year the mineral clubs of New Jersey honored themselves and their mineral-rich home state by entertaining the annual convention of the Eastern Federation of Mineralogical and Lapidary Societies.

This year's meeting was held in Paterson at the Alexander Hamilton Hotel October 8th, 9th and 10th, with a field trip to the dumps of the New Jersey Zinc Company at Franklin on the 11th. The 1952 convention met in Newark at the Essex House with a similar schedule. For both conventions the host organization were the North Jersey Mineralogical Society whose activities center in the Paterson Museum; the Newark Mineralogical Society and the Newark Lapidary Society.

William B. Aitken of Westwood, N.J., was the 1953 president of the Federation which includes 19 mineralogical societies located along the Atlantic seaboard from Maine to Miami, Florida. He was for four years president of the North Jersey Mineralogical Society and is also a member of the Newark Society.

Ben J. Chromy, former president of the Mineralogical Society of the District of Columbia, was named Federation president for 1954, with these associate officers: vice president, Virgil G. Sleight of the Miami Mineral and Gem Society; executive vice president, Henry B. Graves of the same society; treasurer, James H. Benn of the District of Columbia Mineralogical Society (re-elected); secretary, Mrs. Lucy Dalla Valle of the Newark Mineralogical Society (re-elected); historian, Miss Florence Hight of the North Jersey Mineralogical Society (re-elected).

General chairman of arrangements for the Paterson convention was E. J. Talamini of the Newark Mineralogical Society, aided by a group of hard-working sub-committees whose many hours of thought and effort conduced to a convention which was colorful, enjoyable

and financially profitable to the Federation.

The 1954 convention will be held in Miami, Florida, with the farthest-south member society as host. The time will probably be October.

The scheme of these mineralogical conventions divides their activities into two major and perhaps two minor parts, which latter are the field trip and the convention dinner. The chief portions of the conventions are devoted to competitive exhibits of mineral specimens and amateur lapidary work arranged by member societies; and the commercial displays made by mineral dealers whose specimen material is eagerly sought by collectors to augment their own cabinets.

The competitive displays are judged anonymously, and this year for the first time, the convention awarded a handsome trophy to the society winning the highest number of points. To its slight embarrassment but to its great joy, one of the host societies, the North Jersey Mineralogical, won the trophy, taking three first places and one second place.

The prize winning mineral display showed 100 minerals from the Franklin, N. J., zinc district, receiving its points for the best group from one locality. A feature of the display was a block model of the zinc deposit built up from its actual minerals, the Pochuck gneiss, the Franklin limestone and the zinc veins. This was made by William Pfeiffer who arranged the display and spaced the mineral specimens to appear to be coming down from the mine. Since the Franklin deposits contain about 160 different minerals, some of which are microscopic, the Paterson society's assemblage attracted much attention. After the exhibits had been judged, the names of members who had loaned specimens from their personal collections were added to the exhibit. They included William Casperson, Lester Clut-

terbuck, William Pfeiffer, Louis Reamer, Gene Vitali, Wilfred Welsh, George Werner and John Wiegand.

The lapidary display accounted for the rest of the points gained by the North Jersey Society: first place for cabochons and baroque stones; first place for hand-made jewelry set with mounted stones; second place for hand-made rings. This entire display was the work of Mrs. Graham Rendell except for some half-dozen pieces of jewelry made by Mr. Aitken.

Mrs. Rendell does not use a tumble-drum to make baroque gems but shapes them in free-form on ordinary lapidary wheels; she also does her own jewelry designing and works in both gold and silver with equal skill. She exhibited several matched sets of bracelet, ring and necklace, along with single pieces in great variety. Mr. Aitken's jewelry was of silver and showed free-form stones in massive mountings.

On the whole the competitive exhibits were somewhat better than in previous years, as might be expected, and nearly all of them won points in one or more categories.

The District of Columbia Mineralogical Society won first place for micro-mounts, and first place for general attractiveness of its minerals. This display was centered by a museum-size specimen from a new find of apophyllite and prehnite at Centerville, Va., near Bull Run of military fame. Two varieties of apophyllite occur: there are large pinkish yellow crystals here and there over the prehnite which is also thickly sown with small colorless ones. The small ones resemble the apophyllite crystals from the old quarries in Paterson, but unlike most of them in having truncated corners, the Virginia crystals have right-angled corners. The prehnite is of the usual sea-green color and has a brilliant luster. The Washington society displayed its minerals in a step arrangement and used mostly large and showy specimens. Noted among them were epidote from Alaska, quartz from Korea and single rough crystals of Burma ruby, Mexican apatite, Brazilian topaz and Ceylon sapphire.

Queens Mineral Society of Long Island was awarded first place for a general display of cabinet specimens. Much admired among them were large well-crystallized pieces of Brazilian citrine, English fluorite, Paterson amethyst, Franklin rhodonite, Clay Center celestite, Arizona azurite-malachite, Maine cinnamon garnet, Illinois fluorite and Michigan copper.

Newark Lapidary Society took first award for faceted stones and polished spheres. Handsome gems were seen, cut from aquamarine, citrine, amethyst, tourmaline and garnet. The spheres were of several sizes and various materials including rose quartz, crystal quartz, malachite and several of the Franklin ores.

The award for a display of minerals of one family group went to the New York Mineralogical Club for a very comprehensive cabinet of tourmaline. Large rough crystals came from Maine, Connecticut, California, Brazil and Madagascar. There were cross section slabs to show the distinctive trigonal arrangement of tourmaline, and several discs about an inch in diameter which have strategic usefulness in pressure gauges to determine the force of explosions. The display included several books about tourmalines, two of which were printed in Japanese. This exhibit was shown by Dr. Frederick Pough, formerly of the American Museum of Natural History.

To the Gem Cutters Guild of Baltimore went first place for polished slabs, several of petrified wood; others of various primary mineral materials.

The Rockland County (N.Y.) Mineral and Gem Society was given first place for hand-made rings with mounted stones. The rings were all of silver, widely differing in design.

The only professional gem display was made by the Wiss Jewelers of Newark and was non-competitive. It featured a collection of colored diamonds in various tints of yellow, blue, pink and lilac. The stones were small, as colored diamonds usually are, and by an amateur might easily be mistaken for many other gems. There was a tray of scenic

agates cut in flat cabochons; one of engraved crests on amethyst, smoky quartz and citrine; and one of intaglios cut in carnelian and sard.

The National Museum of Washington loaned an exhibit of outstanding mineral specimens, all of them large, very fine and practically impossible to duplicate. They were greatly admired and as one visitor said, "they serve as something to aim for." The specimens were Russian malachite, Brazilian rutilated quartz, Argentine rhodochrosite, Arizona azurite-malachite, Brazilian white topaz, New Mexico smithsonite, the new Virginia prehnite with apophyllite and an amethyst geode from Brazil.

The majority of mineral dealers who attended the Newark convention in 1952 returned this year to the Paterson show. They offered mineral specimens from all over the world and in all price ranges from 25c to \$2500. They came from as far away as Texas and Colorado, even from Alaska. They showed in addition, rough slabs for polishing, finished stones unmounted, finished jewelry; mineral lampbases, bookends and other artifacts; fluorescent minerals, literature on minerals and gem-making, some fossil material, ancient Mexican and Alaskan art and artifacts in stone and ivory.

The convention which opened at noon on October 8th, was expected to be honored by the presence of Paterson's mayor, Lester F. Titus. He did not attend but sent a representative who extended the city's official greetings and severed a barrier ribbon with a mineralogist's hammer instead of scissors, and the show was on. From then until the closing hour on Saturday night eager and interested visitors thronged the display rooms, admiring and buying minerals, greeting old friends and making new ones. Many children were present Friday evening and Saturday, and they too were much interested in the minerals.

Paterson's Representative to Congress, Gordon Canfield was noted among the visitors on Friday, enjoying the exhibits which he said revealed an astonishing amount of interest in the collecting of

minerals and the working of gems.

An illuminating commentary on this observation is the fact that the majority of individual members of the Federation hold membership in at least two local mineral societies; many of them belong to three such groups.

Many visitors at the convention accepted the invitation of Paterson Museum to see its mineral collections. From its inception more than a quarter century ago Paterson Museum has specialized in minerals, particularly those of New Jersey. Its collections of Paterson zeolites and associated minerals, and of minerals from the Franklin zinc district are unsurpassed. In addition the Museum has a large collection of minerals from other localities in New Jersey. As these groups have increased through the years they have outgrown the space allotted to them and suffer from lack of proper display facilities. A new and larger building for Paterson Museum is a must for some day in the future.

The convention program provided four lectures: two on gems and two on mineral collecting.

Robert Crowningshield, director of the gem trade laboratory of the Gemological Institute of America, and Jerome Wiss, Newark jeweler and a member of the board of directors of the Gemological Institute, spoke from the professional viewpoint in discussing the identification of gem stones.

Mr. Crowningshield said no one can be sure of what a gem is just by looking at it. To prove his thesis he handed his audience a tray of 24 different stones in shades of yellow and green, almost any one of which might be taken for something that it was not. He pointed out the impossibility of using ordinary mineralogical tests such as blowpipe and scratching, and with a mounted stone, the impossibility of the specific gravity test.

Among the pitfalls, he mentioned the confusion formerly existing in gem names where a stone was often marketed year after year for something other than what it was; and in more modern times, the changes that are sometimes made in stones

by heating and by exposure to gamma radiation.

On the positive side, he said the refractive index reading is usually a very good test, also microscopic examination. He showed some of the jeweler's laboratory instruments including the polariscope, the dichroscope, immersion liquids and the sodium vapor lamp, and explained how they are used and what information they give on identification. The microscope and the ultra violet lamp are used to distinguish real from synthetic stones, he said, and added that the x-ray test must be used on pearls. Pearls from fresh and salt water differ, and so do real ones and cultured ones. Chemical tests obviously cannot be used on pearls, nor can they on many other types of gems.

Mr. Wiss said the Gemological Institute was founded to provide jewelers with the education necessary to answer the questions of their customers. A stiff course of study is given and jewelers must pass a series of examinations before they may become registered members of the profession.

Factors which must characterize a gem, he said include beauty, durability and rarity. Durability means further that a stone must have hardness—greater than 6 on Moh's scale—and/or toughness. If a stone is colored the color should be permanent, not subject to fading; and finally, the stone must be able to withstand ordinary acids and alkalis.

Diamond of course, most nearly meets all such requirements, and in general the jewelry business means diamonds, he said. Diamond has been estimated to be from 40 to 1200 times as hard as corundum, although it ranks just above corundum in the hardness scale.

Mr. Wiss discussed the corundum gems, sapphire and ruby; the beryl gems, emerald, aquamarine and morganite; and the chrysoberyl with its variety, alexandrite. He said the colors are due to metallic oxides of various kinds, and that all gems if 100% pure, would be colorless.

"Why New Jersey is a Happy Hunting Ground for the Mineral Collector" was the title of a comprehensive paper pre-

sented by Meredith Johnson, New Jersey State Geologist.

At the outset he reviewed the worldwide fame of Paterson as a locale for zeolites and other minerals, called attention to the collections of New Jersey specimens in Paterson Museum and urged his hearers to go and see them. He called attention to other collections in the museums at Trenton, Princeton and Rutgers and to many private collections of excellence.

"What other state," he challenged, "can produce 370 varieties of minerals?"

Beginning with the southern part of the state, he mentioned many locations and what may be found in each. Farthest south are the Cape May "diamonds" quartz crystals on the ocean beaches. Bright blue vivianite occurs, with some mica, pyrite, marcasite and lignite. Chert from Camden county makes handsome polished specimens, he said. Quartz found near Trenton and in Monmouth county must have originated at Paterson and been carried south by glacial action and river currents. The Sayreville minerals are about ten in number and are similar in the other claypits of Middlesex county.

Some feldspar and amphibole minerals are found, and the Manhattan schist outcrops at Hoboken. Red shales and sandstones from New Brunswick to the north contain copper and allied minerals, even gold in tiny amounts and some silver with the copper.

The Paterson area has yielded more than 70 different minerals, and the Franklin zinc area numbers about 160 species. The numerous iron mines in north Jersey provide specimens from their dumps, and the limestones of Sussex county outside of Franklin produce a variety. An occurrence of nephelite syenite with hackmanite has been discovered at Beemer-ville, and arsenopyrite occurs in Warren county.

Dr. Alfred C. Hawkins, practicing mineralogist and author of books on minerals, told how mineral collecting may be done in the kitchen sink, and also discussed many out-of-the-way locations from Rhode Island to Georgia.

He said that by evaporating salt brines one may obtain microscopic crystals of whatever minerals may have been carried in solution. The same thing can be done with ordinary tap water, he said, but the minerals will be different.

He mentioned unusual pyrite cubes which occur in a pyrophyllite deposit near Glendon, North Carolina. Their characteristic is diagonal etch marks which are not found on ordinary pyrite.

A pyrrhotite deposit at Anthony's Nose, N. Y., has a dump containing some unusual specimens. He said sulphur is again being taken from sulphide deposits as the Gulf salt domes decrease in content. It has been found that pyrrhotite retains its helium content with very little leakage, and this holds promise as a means of learning the geologic age of such deposits.

In New Jersey he recommended small streams flowing out from an old copper

mine at New Brunswick as a source of nice copper minerals. Bell Mountain on the Delaware River in Mercer county affords epidote crystals and chlorite. The Preen quarry at Oldwick, formerly New Germantown, is similar to the Watchung Mountain formation but of later date, and should provide some good minerals, he said.

Dr. Hawkins has been making an investigation of the gold in Georgia centering at Dahlonega where the United States built its first mint and coined more than \$6,000,000 years ago. He said the gold occurs in decayed soil but is very fine and impossible to see. The investigation is being made with a view to resuming mining when and if the price of gold makes it worth while.

NOVICE COLUMN

In the Sept-Oct 1953 R&M, Gordon ViGario, 2231 Pine St., Bakersfield, Calif. suggested that a Novice Column be opened for rank beginners in mineral collecting. These amateurs, who do not know one mineral from another, may submit their names to the Novice Column.

It is our hope that collectors having duplicates may donate a few specimens to one or more novices who are expected to acknowledge receipt of specimens received and to reimburse each sender for postage paid on the packages. Please print or write plainly the names and localities of all specimens sent novices, and if 2 or more minerals appear on the same specimen, identify each. Remember the novices do not know one mineral from another, so please be as helpful as you can.

The Novice Column has been so warmly received that we are encouraged to open it in this issue. Here is a typical letter received:

Editor R&M:

"I read with interest Gordon ViGario's

letter in the last issue. He beat me to it by about two days. I think he has a very fine idea.

"You may put me on record as being more than willing to send specimens for postage (coins) and no strings attached. Also any beginners (or advanced collectors too) may call on me. I would be very happy to meet them."—Charlie Bennett, 210 W. Franklin St., Horseheads, N.Y.

The following is the first list of novice collectors.

Novice Collectors

John H. Andes, 425 W. Locust St., Lanark, Ill.

Libby Hood, 295 Warren St., Brookline, Mass.

Clair Jones, R1, Springport, Mich.

Paul E. LeSage, 107 E. Euclid St., Ishpeming, Mich. (14 yrs. old).

Mrs. C. J. Gott, Rt. 1, St. Paul 7, Minn.

Barbara Keil Ippolito, 1004 School Village, Seabrook, N. J. (9 yrs. old).

Wm. D. Montgomery, Jr., 2500 S. Colorado St., Philadelphia 45, Penn.

MMS FIELD TRIP TO MICHIGAN'S UPPER PENINSULA

By FLOYD N. MORTENSON

69 West End Avenue, Pontiac, Michigan

It was at one of last winter's meetings of the Michigan Mineralogical Society, that Helen and I mentioned we were planning a vacation field trip to Michigan's Upper Peninsula during the last half of July and that we would welcome the company of as many of our friends who could make plans to join us. We had expected that perhaps six or seven hardy collectors would respond to our invitation but we did not anticipate the building up of a list of 52 names of individuals who actually did participate in some part or all of the six-day invasion of Marquette, Baraga, Houghton and Keweenaw Counties.

The response almost bowled us over so we started planning in earnest because we now realized that we had something started and that the best thing to do was to get to work and make sure that it would be a success. We first asked the Ishpeming Rocks and Minerals Club to help us on the first of the six days which we had scheduled for Ishpeming, Michigan. Bob Markert and his associates came through in great style to properly launch the expedition. We also turned to Mr. George E. Bishop, Secretary-Manager of the Upper Peninsula Development Bureau of Michigan, Marquette, Michigan, and were well supplied with information accommodations and other suggestions. We made arrangements with the Michigan College of Mining and Technology at Houghton, Michigan, for a joint field trip in the Copper Country with the Geological Engineering Staff and 19 students. With these preliminary arrangements as a nucleus we worked up a tentative schedule of places that we thought could be included in a six day period. After many revisions and help from Bob Markert and others we came up with a schedule boiled down to places, hours and minutes.

We had used up one week of our allotted three week vacation at St. Louis and in the Missouri Ozarks during the Midwest Federation Convention. We used

our second week for a last minute survey of the proposed route and made necessary arrangements. The third week of our vacation was spent in a whirlwind of activity which is described in the schedule of events presented below:

Sunday, July 26, 1953

(6:00 P.M.—on). Registration of 72 persons was duly taken care of at the home of Mr. and Mrs. Robert Markert at 107 West Ridge Street, Ishpeming, Michigan. Visits were made to see the collections of Charles C. Hawes, Robert Markert, Bud Bamford, Joe Collick, Gust Engman and Lenwood Trebilcock in Ishpeming and Thomas H. Roberts and Robert K. Richards in nearby Negaunee.

Monday, July 27, 1953

(7:30 A.M.) We assembled at West Ridge Street and drove to Jasper Knob, which is located within the City of Ishpeming.

(8:00 A.M. — 8:30 A.M.). From a high vantage point on famous Jasper Knob we enjoyed a clear view of the City of Ishpeming spread out before us. Shifting our eyes, we looked down at the material that we were standing on and saw the most gorgeous patterns of banded red jasper and black sparkling specular hematite which turned and twisted into sharp folds. This entire hill is made up this jaspilite. The musical ring of collectors picks and hammers sounded like the "Anvil Chorus."

(9:00 A.M.—10:00 A.M.). We split into two groups of 36 people in each group to visit the surface plants of the Mather Mine. One group visited the "A" Shaft in Ishpeming while the other visited the "B" Shaft in Negaunee. At these operations we witnessed a neatness and cleanliness that was almost unbelievable, for iron mining. The grounds were landscaped with colorful flowers and shrubs which really did "dress up" the place. We were treated to a very interesting lecture on underground iron mining, well illustrated with color slides. Each group

was again divided into two sections and conducted on a tour of the premises. We saw the locker rooms or "drys"; the shower rooms; the engine house where the huge hoists, air compressors, electric generators etc. are located; the collar of the shaft where we saw some miners get on the "cage" and descend into the depths of the mine several thousand feet below. Outside the building again we saw ore being loaded into railroad cars from a chute in the ore loading pocket beneath the enclosed trestles or "landings" which branched out from the shafts house or "headframe." These same trestles are used to convey the iron to the stockpile when the output of the mine cannot be shipped to the ore docks during the winter months when the lake boats are not operating. We saw a large power shovel loading stockpiled iron ore into railroad cars for shipment to the docks at Marquette. Interesting is the word for this, the world's largest underground iron mining operation carried on only a stones throw from the spot where iron ore was first discovered in the Lake Superior District over a hundred years ago.

(10:30 A.M.—11:30 A.M.). North of Ishpeming we prowled over the area of the Ropes Gold Mine and its neighbor the Verde-Antique Marble Quarry. The geology of this area was reviewed and the collectors picks had a good work out. Specimens of talc schist, serpentinized peridotite, pyritized quartz, asbestos, fibrous serpentine were gathered and labeled.

(12 Noon — 1:30 P.M.). Time out for lunch. At the Ishpeming Winter Sports Area Clubhouse we were royally entertained and treated to a most delicious "luncheon" (it was really a dinner) as guests of the Cleveland-Cliffs Iron Company. We ate baked ham, 'scaloped potatoes, baked beans, salads, ice cream and cookies until we had a well loaded and topheavy feeling and wondered if we would be able to make it out the door. Albert and George Quaal know how to put on a good feed!

(2:00 P.M.—2:45 P.M.). We settled our "luncheon" by hustling out to the National Mine dump south of Ishpeming.

Scrambling over the piles, we found some goethite and iron stained quartz xls. We also aroused the curiosity of the natives who asked if there was a wedding or funeral going on. When we explained that we were mineral (rocks to them) collectors they shifted their gaze from the golden colored ribbons tied to the car radio antenna to us and gave us that well known glassy eyed look.

(3:00 P.M.—3:15 P.M.). We stopped for a brief look at the Tilden Open Pit Mine operated by the Cleveland-Cliffs Iron Company. The iron ore mined here is a hard, red, siliceous, low phosphorus hematite and is used for grading as a mix with other iron ores. We listened to an interesting talk by Superintendent Olson who explained the operation of the mine and the peculiarity of this siliceous iron ore. After watching a power shovel load a few trucks, we headed for Ishpeming via the world famous Suicide Hill ski jump. It did not take much imagination to understand why it was called "Suicide Hill." It would feel like pure suicide, to me, if I should ever start down that slide from the top.

(3:30 P.M. — 5:00 P.M.). The old Sellwood Mine dumps received our attention to close the day's collecting. We found goethite with a coating of golden sheen and xls of limonite pseudomorphs after pyrite (cubes-singles and in clusters). Our packs were heavy by this time; and having done a good day's work, we headed for the wash bowls to rid ourselves of the red hematite and prepare for the big feed—the "BOULDER BUSTERS BANQUET."

(7:00 P.M. — 11:00 P.M.). We sat down to the festive board on time. There were 86 hungry and happy mineral enthusiasts who reverently bowed their heads while the Rev. Father C. J. Petranek, of Crystal Falls, Michigan, gave the invocation. The way that things happened after that, made us all certain that we had come to the right place. The turkey dinner that the ladies of the Wesley Methodist Church placed in front of us took care of that empty feeling. There was plenty of food (we even had seconds) and it did not help the battle of the

expanding mid-regions. For Toastmaster we had the best. Mr. Walter Gries, of Negaunee, held our interest with his unbeatable stories. Mr. George E. Bishop, of Marquette, spoke about the Upper Peninsula's attractions, saying that once a visitor has been there, he invariably wants to return. Mr. Robert K. Richards, of Negaunee, told how collectors find interesting stories in the rocks, igniting the fires of curiosity within themselves. Mr. Charles C. Hawes, of Ishpeming, explained how his hobby was a great help to him as a chemist in the laboratory of the Cleveland-Cliffs Iron Company. He called to our attention that all minerals were formed in Nature's large Chemistry Laboratory by processes which took place many millions of years ago and were still going on. Bob Markert, President of the Ishpeming Rocks and Minerals Club, welcomed the group to Ishpeming. Floyd N. Mortenson (that's me) gave the response and praised the hospitality and the work done by the Cleveland-Cliffs Iron Company and the Ishpeming Rocks and Mineral Club. William E. Beresford of Bloomfield Hills, Michigan, President of the Michigan Mineralogical Society, described the make up and aims of our visiting club. We then adjourned from the dining table to take in an illustrated lecture of the early pioneer days of mining which was so ably presented by Mr. Ray Brotherton of Negaunee. It had been a long day and being well fed, well entertained, and all tucked out, we welcomed the comforting caress of the pillow and went to sleep, dreaming about the next day in the field.

Tuesday, July 28, 1953

(7:30 A.M.). We assembled again at the West Ridge Street School.

(8:00 A.M. — 9:00 A.M.). The Michigan Gold Mine, west of Ishpeming, was our first target. Here we found some good feldspar porphyry, quartz and molybdenum specimens. Mrs. Tolson Radloff of Lincoln Park, Michigan, was real proud of her find (so were we). She picked up a piece of quartz with some native gold showing that could be seen without an eye piece.

(9:30 A.M. — 11:30 A.M.). Moving into the west end of Marquette County, we combed the dumps at the Champion Mine up on Beacon Hill. This was indeed a "Happy Hunting Ground" and supplied specimens of specular hematite (some of it beautifully iridescent), pyrite, garnets, tourmaline in quartz, siderite and micaceous hematite.

(12:00 Noon — 1:00 P.M.). Sixty-three "Cousin Jack" Pasties were passed out to hands which were shaking with hunger at the Van Riper State Park Pavilion. If you have never had the pleasure of eating a Pasty, you just haven't lived. Go any place in Michigan's Upper Peninsula and ask anyone where you can get one. They will tell you. They filled the bill (and us) at Michigamme.

(1:15 P.M. — 1:45 P.M.). We chiseled the outcroppings in the fields south of Lake Michigamme and pried loose some mica schist slabs with staurolite xls included. The sky cried a few tears (the only rain of the entire trip) but nobody paid any attention to it.

(2:00 P.M. — 2:45 P.M.). The dumps of the old Michigamme Mine, which has not operated since 1905, furnished some interesting garnet xls which have been altered by the chlorite schist in which they are impacted. They are very difficult to extract from the schist without damaging the xl. Nevertheless, some sharp faced xls were gathered as well as plenty of grunerite, an iron-magnesium silicate, and magnetite xls which were thickly distributed throughout the chlorite schist rock.

(3:30 P.M. — 4:30 P.M.). Our caravan penetrated into the wilds of Baraga County, a few miles north of Alberta, and extracted some superb and sparkling specimens with pyrolusite and psilomelane. Nearby we also found some loose slate which had veins of pyrite along with graphite.

(5:30 P.M. — 6:30 P.M.). We headed north on US 41 with our golden ribbons streaming and after washing up at Houghton we enjoyed a fine meal at the Memorial Union Building on the Campus of the Michigan College of Mining and Technology.

(7:00 P.M. — 9:00 P.M.). The day was ended with a visit to the famous A. E. Seaman Mineralogical Museum, as guests of the College. Dr. Snelgrove was on hand and answered many questions asked by all us. Over 20,000 mineral specimens are displayed here and are so arranged that they are effective educationally as well as being attractive. We also visited the Houghton Agate Shop on Franklin Street, owned and operated by Gotfred Samuelson.

Wednesday, July 29, 1953

(8:00 A.M. — 5:00 P.M.). The group met at the Union Memorial Building and joined forces with Dr. A. K. Snelgrove, Professor A. N. MacIntosh and 19 Engineering Students from the College for a day in the field. It was a day of opportunity to learn something about the geology of the Copper Country, to see the formations as pointed out to us by experts, and have the story explained by them. We visited the South Range Quarry where veins of pistachio colored epidotized rock and thomsonite zeolites were found in the exposed basaltic flows. The next stop was at the Baltic Shaft #2 dump where the following minerals were found: native copper, chalcocite, bornite, chalcopryite, ankerite, calcite and rhodochrosite. Pushing onward, we came to the Triangulation Tower which is situated high on the hill above Houghton. A most magnificent view of the city of Hancock and the valley was enjoyed. Near the tower we observed several classic examples of glacial grooves and gathered some good samples of iddingsite which is a magnesium iron silicate with water (an alteration product of olivine). The rock has red flashes which resembles copper. After lunch we visited the exposure of the Keweenaw Fault near Dodgeville. This fault is an upward thrust which separates the basaltic flows and the conglomerate layers from the Lake Superior sandstone. For the balance of the afternoon we roamed to the north of Houghton and Hancock and viewed the sandstone exposures along the road to Lake Linden, visited the Quincy Reclamation Plant at Mason, the Natural Wall

and Douglas Houghton Falls near Lake Linden.

Thursday, July 30, 1953

(8:00 A.M. — 9:00 A.M.). We assembled at the entrance to the Arcadian Copper Mine. This mine is not operating at the present time and is open to visitors. This mine is entered by means of an adit into the side of the hill instead of the usual shaft as used in the other mines in the district. We walked into the mine better than 2,000 feet and had a grand time inspecting Mother Earth from within. We saw native copper and zeolites in their natural setting.

(10:00 A.M. — 10:15 A.M.). At Osceola on the outskirts of Calumet we visited Mr. Paulson's famous Cloverland Free Museum. Here we saw on display everything from soup to nuts, including ancient automobiles, mechanical music makers, stuffed animals, minerals, etcetera and etcetera.

(10:30 A.M. — 11:30 A.M.). Going through Calumet we picked up John Tobola who proved to be a great help to our group as he is very familiar with the region and is quite a famous mineral collector. How could he be otherwise He is an uncle of John Mihelcic of Detroit. We stopped at the Ahmeek Mine dumps (#1) for some domeykite or mohawkite (a copper arsenide) and had good fortune.

(11:45 A.M. — 12:45 P.M.). At the Calumet & Hecla's Iroquois Mine we searched the piles with luck and the permission of Captain Penprase. The loot included prehnite and calcite with copper inclusions and also some datolite nodules so generously given by Captain Penprase.

(1:00 P.M. — 1:30 P.M.). Time out for lunch in the woods where we relaxed and refueled our bodies. Most of us had pasties of course.

(2:15 P.M. — 3:15 P.M.). The dumps of the Copper Falls Mine received our undivided attention. We were after analcite and natrolite xls. That is what we found. John Michelcic found a specimen with datolite xls. This place is off the beaten path and requires a walk through some brush.

(3:30 P.M. — 4:30 P.M.). Our last stop for the day was at the Delaware Copper Mine dumps. Here we gathered in some chlorastrolites (sometimes called greenstones) and a few pieces of massive datolite, and of course copper.

(5:00 P.M.). We arrived at Copper Harbor rather piecemeal as some people had more rugged constitutions than others and stayed out on the Delaware dumps for a while longer.

Friday, July 31, 1953

(8:00 A.M.). We assembled at Fort Wilkins State Park.

(8:30 A.M. — 11:30 A.M.). This was the trek of the entire expedition. It was not very far but the farther we penetrated into the forest, the more difficult the road became. It just would not behave at all. In fact it even quit being a road and degenerated into a lumber trail that only jeeps should travel on but we, being of undaunted spirit, moved on and on, crossing creeks and streams on boards and logs, plowing through mud holes and soft spots until we came upon a lumberjack who informed us that we were at the end of the trail and that we might as well turn around and retrace our steps if we were looking for the Clark Mine because we had gone by it. We recrossed the bridges and reslashed through the mud holes and eventually got to the Clark Mine. Here we had good picking for analcite and datolite.

(12:00 Noon — 1:00 P.M.). After our morning exercises on the Clark Mine dumps, we returned to Copper Harbor and attended to the need for food that always seemed to require attention up in this wonderful North Country where the air is so pure that it seems like a dessert to breathe it. At Marco's I asked for the biggest steak that he had and when it was placed before me I wondered if I might possibly have made a mistake. Was it big! I got away with it though, much to the surprise of all present.

(1:30 P.M. — on). The afternoon was declared a "Free-for-all" with no trips scheduled for the group. Several recommendations were given to the group as to what to see and do. Some went back to

the Clark Mine. We went up on Brockway Mountain Drive (after a couple of hours of snoozing and resting) and on over to Grand Marais where we had agreed to meet some of the group at Mrs. Frances Hoffman's cottage. Mrs. Hoffman had taken them to her private Agate Beach where she had taken Helen and me the week before. Wonderful green banded agates and a mottled type which she calls "hubbardites" were found. After a delightful stay at Grand Marais we traveled west to Great Sand Bay and spent the balance of the day combing the beach for those wonderful Lake Superior agates and thomsonites. This part of the Lake Superior shoreline is very beautiful and enchanting. It was near here that, on the previous week, Helen and I had been guests of Norman and Louise Wann of Detroit. Their very comfortable cottage is strategically located on the shore of Lake Superior. We sat on the porch and watched the parade of ore boats passing in both directions. We counted 13 boats that were in sight at one time.

Saturday, August 1, 1953

(8:00 A.M.). We assembled for this, the sixth and last day of our program, at Fort Wilkins State Park near Copper Harbor, Michigan.

(8:45 A.M. — 9:00 A.M.). We drove along the shore of Lake Superior to Eagle Harbor and then on to Eagle River where we saw the stone monument erected there as a memorial to Douglas Houghton, Michigan's first State Geologist, who had been drowned in Lake Superior just off this shore.

(9:45 A.M. — 12 Noon). From Ahmeek, after visiting with Vi Miller at the Keweenaw Agate Shop, we drove north to Five Mile Point on Lake Superior, where several miles of beach were just waiting to be looked over. Several good agates were found here. At noon, Helen and I said goodbye to the gang and headed south through Calumet to Houghton and on to Ishpeming, where we loaded our car with the loot which had been temporarily stored at Ishpeming. The tail pipe and bumpers were almost scraping the ground

as we took off for lower Michigan. Back home we settled down to our regular routine with many happy memories of a wonderful experience in the field with the pleasant thought that we had shared

our favorite country, the Upper Peninsula of Michigan, with our friends and had carried the banner of the Michigan Mineralogical Society with us.

TWO WAYS OF TELLING A STORY

Like those engaged in other activities, the mineral enthusiast who studies and talks minerals, or the mineral collector, whether he buys, exchanges or collects his specimens, will meet with unusual experiences, a few of which leave a desire for improvement in human nature.

When the rockhound strays off the beam and runs amuck, he generally takes one of two tangents. There is the person who "romances," as we used to call it, who is forever building mountains of jade out of mole-hills of green jasper, or his counterpart who is so secretive and mysterious that all the facts can not be prised from him in any number of interviews, and one is left to surmise what the true facts are, and ends up with an incomplete or erroneous conception of things guessed at. Two instances will illustrate these tendencies.

Several years ago a mineral magazine carried an article by a trailor traveler who made a trip down the Yellowstone River in search of Montana moss agates, the following paragraph attracting the eye of the reader.

"From Miles City down river to Glendive and back again, we spent five profitable days—and hit on numerous unprospected gravel bars—We found an ideal place to camp near a cool spring, and in the evening we enjoyed gazing up at the stars—and asked as we gazed if their glory was as great as our own. We made this spot our base for several days, as among other things the cool spring kept our butter and tomato juice just right.—This spring was one of those many lovely spots, so common to the west, and far away from the noise and rush of civilization. Just like Grimstead says, 'Home on the Range.' Our second trip proved high-

ly profitable."

Then the writer told of being "bogged down" in the middle west away from all of it where field trips seem "Tame after our Montana experiences. So we take out our memories to the good trips and look forward to the future ones while 'visions of sugar plums dance in our heads.'"

To the reader, having planned an agate hunt for the following spring down that self same river, and expecting to use tent and camping equipment, that "Ideal place to camp near a cool spring" hit the bullseye, star gazing being a secondary matter. A letter was written to the author addressed to a trailor court in a mid-western state, and after some weeks and repeated forwardings, as far west as Phoenix, Arizona, the letter was returned undelivered. A letter to the editor of the magazine brought the current address and the letter was remailed. The letter explained the proposed trip and stated that the author of the article could be of great assistance by furnishing a pencil map showing all details after leaving the main highway, approximate mileage, and just where to turn off to find that "fine cool spring."

A reply was received in due time. A map was not included, and the sum total of information given was that—"they had made two trips down the Yellowstone, and had driven over a great many dirt roads—had not kept particular account of directions or winding of roads, and to save her soul was unable to direct one just how to find the place,"—and that after making it headquarters for daily trips and spending five nights there "gazing up at the stars." And so the "ideal place to camp by a cool spring" evaporated into thin air, so far as the

collector was concerned, and that probably was just what that camp site was—thin air.

The trip was made as planned, motels used instead of tent, a reasonable number of agates collected and a fine time was had; but without that fine camp site and spring of cool water to call to memory, no "visions of sugar plums dance in our heads."

Last spring one of the mineral magazines carried an item stating that a certain mineral collector and a friend from a neighboring city, while prospecting a little known locality, found two nodules containing a mineral that had not previously been reported from that state. When broken open a dozen specimens resulted from the find.

In a later issue of the magazine the collector made what he called a correction of an error in the first record, by adding quite a bit of additional detail that in no way changed the record other than to increase the number of specimens from a dozen to more than two dozen. A second trip was noted but the changes and additions are immaterial to the record.

When questioned about the matter the reporter stated that all details furnished by the collector were incorporated in the report to the magazine, the name of the second collector and the fact that he found the best specimen, being withheld as having no relation to the premises. The reporter was also of the opinion that the collector should have captioned his remarks as a Supplemental Report or an Additional Report, rather than a Correction, and gone more into detail. For inquiry brought out the fact that in the second telling the collector failed to mention that he was accompanied by a second junior member of his society, increasing the original from two to seven. That member may now feel slighted. The number of specimens has grown also, but a rockhound may have some of the attributes of a fisherman when he describes the number and size of his catch. Then, too, a hammer could have been used, or the full tale may have not yet been told.

These instances are cited to show that the mineral fraternity could and should be more careful with fact and figure. There is no excuse for over statement or under statement of fact.

When a mine or quarry operator, or a man who owns land on which minerals are found, strays off the beam and runs amuck, the tangents taken are the same as for the rockhound, human nature being what it is. But instead of being trivial, funny or annoying, as the case may be, as in the instances cited above, the collector is faced with calamity, regardless of where the fault may lie.

A trap rock quarry located in an eastern state has been in operation for a generation or more. During all this time little to interest the mineral collector had been uncovered until two or three years ago when a blast uncovered a vein of exceptionally fine zeolites and other minerals. Further blasting along the vein was not made until the summer of 1953, when even better material was found and collected by members of at least four mineral societies operating in a radius of fifty miles, and from different states.

Then things began to happen. It is reported that when a collector, ignorant of all that had transpired, stopped at the quarry to see how things were progressing, and asked permission to look at the vein, he was denied permission to enter the quarry on the ground that a collector had made a nuisance of himself, had brought boys on the property during working hours, and when ordered off had returned and destroyed company property. For this reason the place had been closed to collectors. The statement was made that drilling was then being done along the vein with the hope that blasting could be done the following afternoon (Friday) in which event a scientific body who had made plans beforehand would be called so that collecting could be done Saturday and Sunday when the quarry was idle. When asked what would prevent collectors from picking the place clean over the week end, should he fail to contact the party by phone, the reply was that a watchman was on hand.

As the collector was departing, many shots were heard, and it was later determined that while he was leaving the property the phone call was going through, stating that blasting would be done in five minutes. When the collector heard of this two hours later and phoned the quarry to inquire what had happened, whether an unexpected discovery had been made, the reply was, "These were the shots we expected to be ready to discharge by tomorrow afternoon, but we got around to it sooner than expected." Sic. Later that same afternoon, when a young man asked if he might collect after working hours, he was answered to the effect that since he (the employee) would not be there he could not say no. It was later reported by one who was there that the place "swarmed" with collectors over the week end, yet the collector first named was told that a watchman would be on hand to prevent just that.

These are all trivial incidents, and we understand there were many more, but the citation is given to show that there can be two ways of telling a story even when an incorporated company is involved.

This is similar to an incident that happened when a teacher gave a party for her class of young teenage boys. A tub of popcorn balls had been prepared with the idea of having the boys fish for them from behind a screen. When time pressed, the teacher used a quicker method. The tub was placed in the middle of the room and the boys arranged in a circle around it as far away as space would permit. When the word "now" was shouted, a wild rush was made, and one can imagine the sequel. After it was over one pudgy youngster was noted standing by himself and making repeated glances, first from his one lone ball of corn to the chap who had an arm full, then back to his own ball. Finally he remarked; "That's what a fellow gets for being polite." That is what happened to the collector. While the more aggressive, including those who destroyed property, were making fine collections he was being "polite" and obeying quarry rules—con-

sequently got nary a specimen.

"The innocent bystander" learned later that collectors had been overrunning the quarry ever since the blast of two months before, and at least three persons, two of them boys, had damaged or destroyed property. While the damage was probably slight and the wages for a caretaker for a month much in excess of cost of replacement, that is not the point. When the collector becomes unreasonable, the quarry owner may become unreasonable, and he sometimes does as noted herein but with this difference; the collector always starts the ball rolling, is the guilty party, and the owner always wins—it is his property.

The company may be justified in denying entry to its property by the general public because of one instance of vandalism, but to deny entry thereto on that ground to accredited geologists and mineralogists, as has been intimated to be the case, would appear to be arbitrary—it does not make sense, any more than the two ways the story was told make sense. The quarry was later posted, a caretaker placed on the job, and there is one place less for collecting in an area where too few places existed in the beginning.

The situation here is something like that story told somewhere in the Bible about a flock of 100 sheep. The one (he must have been black, though the record is silent) that went away on a binge of his own caused more trouble than all the 99 that stayed home and minded their business. In the case of the mineral society the tragedy is that each of the 99 are held to be as guilty as the one offending person.

Every mineral society seems to have at least one sheep (and he must be black) that is "cooking the goose" of all of us. More and more collecting areas are being closed, mineral societies are acquiring a bad reputation and scientific bodies are beginning to complain that vandalism by members of mineral societies is closing collecting areas to them, areas where material must be collected for study if certain problems are to be solved.

It does not take a prophet or a wise

man to predict that if something is not done, and done soon, to check this down swing tendency that seems to be growing, that within 25 years we may have a hobby boasting a membership of six million, all dressed up in latest collecting togs, adorned with mineralogist hammers, picks, chisels, et cetera, and no place to go. It is time for the 99 to get busy.

Editor's Note: The writer of the above article, a longtime member of the Rocks and Minerals Association, with wide experience as a collector, and wishing to better the relationship between collector and the owner of mineralized areas, was asked to recite some of his experiences. *Rocks and Minerals* has always advocated a square and honorable dealing between collector and collector as well as between collector and owner of mineralized areas.

MORE ON OTOLITHS—("HARD HEADS" TO YOU)

By DR. H. W. KUHM

4718 W. Lisbon Avenue, Milwaukee 10, Wisconsin

Writing on "Hard Heads" in the May-June 1953 number of *ROCKS AND MINERALS*, Fred Dustin states that these stone-like formations found in the inner ear of most bony fishes were not collected by the Indians "except as they 'collected' their owners, the fishes who possessed them as parts of their anatomy."

Throughout thirty years of archeological delving I, too, believed this to be the case, but evidence has come to light only recently that these so-called "hard heads"—(scientifically known as Otoliths)—were used by early Wisconsin Indians as an unusual and rare type of ornament. Heretofore these otoliths or ear-stones have been found at many ancient fishing sites where their unaltered condition could indicate merely that sheephead were used for food and the otoliths were just a part of the discarded refuse. But recently the Milwaukee Public Museum, according to Arthur Niehoff, its assistant in anthropology, was in receipt of a collection of Wisconsin Indian artifacts that contained a number of these otoliths, perforated at two points, indicating that they were strung, probably either for a necklace or a bracelet.

These ear-stones, derived from the fresh water sheephead, have a comma-like indentation on the outer convex surface and a series of roughly parallel ridges on the

inner concave side. They are made up of solid concretions of lime, which is laid down in layers, this being clearly indicated in cross section. To ichthyologists these layers provide a means of estimating the age of the fish. Also the enamelled surfaces have characteristic grooves and markings, which along with the shape and size of the ear-stones, furnish a means of identifying the species.

In ancient times in Europe otoliths are reported to have been used as a preventive of colic and also as a talisman to avert the evil eye. There is also mention by Pliny of a remedy for fever and ague among the Romans, using "the small stones found in the head of the Asellus, when the moon is full, and attached in linen to the patient's body." The Asellus has not been exactly identified but is thought to be in the Drum family.

Should you, therefore, be fortunate enough to discover any ear-stones with perforations, you can be most certain that you are in possession of an archeological rarity, for in all probability it served some aborigine for ornamentation.

Incidentally, Capt. J. Y. Cousteau, in his current best-seller, "The Silent World," a story of undersea discovery and adventure, writes: "Some fish have internal ears with otoliths, or ear stones, which make attractive necklaces called 'lucky stones'."

COLLECTING FOSSILS IN MARYLAND

By GERRY & WILL SHULMAN

113 Huntington Terrace, Newark 8, N. J.

Fossils have been dead a long time, but fossil hunters are very much alive, as is evidenced by the enthusiastic group of 32 members and friends of the Paleontology section of the Mineralogical Society of Pennsylvania, who, under the leadership of their distinguished president, Dr. Arthur Hopkins, expanded their scene of operations to the sunny south on the week-end of May 23rd, 1953.

Spring was at its height and Maryland was at its best when the clan gathered at Plum Point, Md. The liquid song of the Red bird and the flash of his fiery wings against the azure sky, framed in golden sunlight, made a never to be forgotten picture and proved to be a good omen of success.

It was reminiscent of our childhood days as we wandered barefoot along the beaches of Plum Point gleaning a treasure of fossil shark's teeth from the tide-washed sands. Several handfuls were collected and among these was a fine $2\frac{1}{2}$ " specimen.

We next adjourned to Kenwood Beach where we dug specimens of Pelecypoda and Gastropoda from the sedimentary deposits on the left side of the beach. Here we climbed up the cliffs by cutting foot-holds on the soil; finding many fossils and enjoying ourselves immensely.

We next adjourned to the Chesapeake Biological Institute at Solomons where we were to stay overnight as the guests of the staff. After showering and changing our clothes we went to dinner as a group to Solomon's historic Bowen's Inn.

Tired, but no longer hungry, we returned to the Institute's auditorium where we were welcomed by Education Director Byron Ashbaugh. Next on the program was a lecture on the wildlife of the Chesapeake Bay area illustrated with colored slides. Romeo Monsueti, the talented naturalist who gave us the talk, amazed us with his erudition and delighted us with his enthusiasm. He also pres-

ented each member with a mimeographed monograph which he compiled, on the wildlife of the area. This proved to be a valuable addition to our libraries.

We were amused by our little 11 year old blonde, long braided, cousin, Elaine Selsky of Shadyside, Maryland, the sweetheart of the party, who told us she would wear her glasses to the lecture so she would look sophisticated.

Closing the evening, naturalist Rudy Scheltema gave us a very interesting talk on the fossils to be found in the area; showing us specimens from the institute's collections and firing our enthusiasms anew. Shortly thereafter the men and women returned to their separate dormitory rooms.

The dulcet tones of Sally Albrecht's guitar and a sweet chorus of feminine voices filtering through the walls soon lulled the men to sleep.

Len and Ginny Duersmith and Gerry and Will Shulman slept out in their cars on the point near the station paying fifty cents a couple to the lady in the corner house for the privilege of camping on her property.

Sleeping out was a very pleasant experience. Bathed in soft moonlight with the intoxicating perfume of honeysuckle pleasantly quieting our nerves, the gentle lapping of the waters of the Chesapeake on the shores and the matchless night song of the mocking birds wove a spell which sent us peacefully off to sleep.

Next morning after breakfast we returned to Kenwood Beach exploring the cliffs on the right side with good success.

After several hours of exploring and digging the members broke up into small groups heading for favorite digging spots in the area.

Our visit to the Calvert Cliffs of Maryland will be remembered as one of the most profitable and pleasurable trips M.S.P. has ever made.



Photo by Leonard Duersmith

The Gleaners of Plum Point — Members of M.S.P.'s Paleontology Section.

A concise and interesting geological picture of the area is furnished by Mrs. Juliet Reed in the May, 1953, issue of our *Keystone Newsletter*.

"The land along Chesapeake Bay is part of the Atlantic Coastal plain, the lowland along the eastern and southern margin of the U.S. which slopes gently toward and under the sea. The submerged portion is the Continental Shelf, which drops off into the deeps of the Atlantic and the Gulf. The Plain is submerged in the north, where the Newfoundland Banks are 300 miles wide, but south of New York the Continental Shelf is about 100 miles wide, and east of Florida it narrows to about 5 miles. The land has become sea and vice versa many times, producing various strata. Along the east coast the sediments are about 1600-2500 feet, while on the Gulf Coast, which has received the sediments from the interior of the continent, the maximum thickness is at least 15,000 feet thick. The warm shallow waters of the Continental Shelf are ideal for marine life, and we find fossils now where the old strata have been uplifted. Prior to the Cretaceous Period there was a seaward-sloping peneplain on old rocks. This sank, was covered by sediments, and uplifted, became the 1st

stage of the Coastal Plain. North of 34 degree latitude, the Coastal Plain is deeply indented by bays and estuaries, and north of Long Island it is largely submerged, leading to the inference that this section has been depressed and that depression increases to the north. Chesapeake Bay is the drowned valley of the Susquehanna River. Why the rivers from the Delaware to the James, on reaching the Coastal Plain, turn and follow its inner edge westward for some miles before turning seaward, is a geological mystery which has had many explanations, none of which have been agreed upon. The surface of the land has been determined by the differences in resistance of the various strata exposed by erosion. It was in Maryland that a series of marine terraces, caused by intermittent rise of the land or falling off of sea level, were first described. The material in these terraces has influenced the drainage patterns."

The most characteristic Calvert Cliff's Pelecypoda and Gastropoda found on the trip were:

Pecten (chloms) *Madisonius* Say. Length 160 mm.; width 200 mm. diameter 40 mm. Description—"Much compressed, with about sixteen striated ribs. Shell rounded, much compressed;

the whole surface covered with scaly striae: ribs elevated, rounded, with about three striae on the back of each; intervening grooves rather profound: ears equal, sinus of the ear and superior valve profound, extending at least one-third of the length of the ear." Say 1824. p. 377-78. *

Astorte Cuneiformis Conrad. "Length 33 mm.; height 23 mm.; diameter 6 mm. Shell trigonal, much compressed; umbo flat with distant shallow undulations, and acute little prominent ridges; apex very acute; lunule very profound, with sharply corinated margin; posterior side produced, cuneiform, acutely rounded at the extremity; cardinal teeth long and rather slender; margin cremulated." Conrad 1840. p. 353. *

Arco (Scapharco) *Staminea* Say. Length 44 mm.; height 33 mm., diameter 21 mm. "Shell thick prominently convex; with about 28 ribs which are rounded and narrower than the intervening spaces excepting on the anterior side, where they are broader, and simply wrinkled, those of the anterior part of the disk have one or two longitudinal impressed lines; they are crossed by numerous transverse, elevated lines, which are hardly more distant from each other than their own width; intervening spaces wrinkled; beaks

distant, curved a little backward, and the tip a little behind the hinge margin: area flattened, a little curved, rather spacious, with obvious impressed, oblique lines: hinge margin rectilinear, with small numerous teeth: posterior margin regularly arcuated: base subrectilinear, very deeply crevated: anterior margin oblique, rectilinear: anterior side abruptly compressed." Say 1832. p. 388 *

Corcula Inaequalis Say. Length 10.5 cm.; height 7 mm.; diameter 2.6 mm. "Shell convex, transversely ovate-trigonal, rough, with unequal coarse wrinkles: anterior margin with a very acute but short rostrum at its inferior termination, separated from the disk by an acute line: base rounded and a little contracted near the anterior angle: umbones not prominent." Say 1824. p. 281 *

Turritella Plebia Say. Length 47 mm.; diameter 13 mm.; typical form. "Whorls convex, hardly flattened in the middle, with about twelve revolving elevated striae, the middle ones alternately somewhat smaller; transverse wrinkles distinct." Say 1824. p. 235. *

* Clark, William Bullock, *Maryland Geological Survey Miocene Text* Baltimore, Johns Hopkins Press. 1904.

LOOKING BACK - - -

Twenty-Five Years Ago in ROCKS AND MINERALS

December 1928 Issue

Where and how to find minerals, by Morrell G. Biernbaum, pp 101-104. In this article the author tells what minerals occur in limestones, sandstones, slates, serpentine, trap, granite, pegmatite, and gneiss.

The romance of rocks and minerals, by R. F. Harter, pp. 105-110. It is not necessary to live in a mining district to study rocks and minerals, Dr. Harter points out in his article.

Mt. Antero aquamarine locality, by Edwin Over, Jr., pp. 110-111. This is the first of a number of articles on Colorado's famous locality to appear in R & M.

Jelly chemistry, by Edward Cahen, pp. 112-116. By studying the reactions which occur between various chemical substances in solution in water, scientists have been able to offer some very plausible explanations of several natural phenomena such as how the agate got its bands, how the gold got into the quartz, the annual rings in trees.

Western New York conodonts, by Raymond R. Hibbard, pp. 117-119. Conodonts are the teeth of some family of small fishes which flourished in the late Paleozoic seas.

MINERAL SHOPPER'S GUIDE

Conducted by CHARLES A. THOMAS

706 Church Street, Royersford, Pa.

Advertisers are invited to send notes or samples of their products. This service is free.

In winding up another year we like to look back on the pleasant things. Pleasant contacts with mineral collectors, dealers and those who want to start collecting or want to try their hand at selling minerals. New facts are learned every day. A statement often heard is that collectors like to see what they buy, right in the dealers' shops and from the dealers we learned that they, too, like the personal contact very much.

There are many collectors who never, or hardly ever, get to a dealer's shop and there are some dealers who do not have the pleasure too often of meeting the collector face to face. These are the people we have tried to help through this department. At least ninety percent of the samples of minerals submitted to this department for examination met with our approval. Those few that did not warrant mention, were few indeed.

A few words about what makes the successful dealer (and satisfied customer) should not be amiss. Firstly, they sell only the finest, freshest looking material and mail the item or items expertly packaged or wrap them expertly after an over-the-counter sale is made. Few mineral specimens could stand the rough handling of our busy postal department and few badly wrapped specimens could stand the usual long automobile trips. We can sadly recall the badly wrapped specimens we have received; some from Canada which must have been beauties when they were dug from the earth and some from many points in the U.S. All of these badly wrapped specimens, good when packed, were not worth two cents upon arrival. Sad, but true!

Also, a good dealer will bend over backwards to please a mail order customer as well as a counter customer. . . and be prompt about it. So do not hesitate to

ship back something which is not exactly what is wanted. The shipped-on-approval plan is designed to give the mail order customer the best possible break. Therefore we state, do not hesitate to order specimens by mail on this basis.

The advantages of buying minerals on sight are many fold. An Easton, Pa., collector tells us that he visited a famous New England dealer mostly to view his wares and not expecting to spend over a certain amount of money. It was just impossible for this collector to leave the dealer's shop without acquiring certain lovely crystals and other specimens at such attractive prices. The collector was John Bertrand; the dealer, Schortmann's. This may prove something or other, but it proves definitely that the dealer had the material, that it was fine and that the prices were right. It also proves that it is entirely feasible to order by mail, since the crystals bought on sight could have been shipped by mail to anyone, anywhere. Catalogs do help and catalogs with printed photos of specimens help even more.

Many thanks to Viola Shull for sending the interesting pieces of Idaho slabbed agate. This state and Challis in particular will be a must for us if we ever get on the road. . . and that far. Mrs. Shull tells us the sad news that O. H. Long of Challis, Idaho, who cut and sold so many beautiful eye agates and other fine picture agates has passed away. So get going Mr. and Mrs. Shull. Please do not let those beauties lie unseen in the earth of Idaho.

Mrs. Francis Delaney, formerly of England, tells us that she is going in for dolomite crystals. We think we told her where to get some interesting material along that line. Cal Gettings has often sent us lovely dolomite and fluorite

crystal groups in combination. James Irvine, of Collegeville, Pa., has promised to help out with a Blue Ball, Pa., pink dolomite. Dolomites can be most lovely. We remember some exquisite saddlebacks we observed in a vug at the Bethlehem Steel Quarry near Bridgeport, Pa., a few years ago and which we could not touch or reach without sub-blasting. We did bring out a few tiny crystals on and between quartz crystals and distributed them to friends. They were colorless and in perfect saddleback form with a waxy luster.

Some months ago we mentioned somewhere in this magazine that we had found what may well be the last few showings of the famous Bridgeport, Pa., malachite on quartz. Many were sent to micro enthusiasts; some few were retained as samples of a bygone era. We sent Charles Smith, of Baltimore, a few which show nice clear quartz crystals associated with the brilliant green malachite. Sorry we cannot send everyone some . . . that's all there is. The particular spot is now most inaccessible . . . and there just are no more nice sheaves to be had.

This department is not a know-it-all and we are not afraid to admit an error. We have promised to report whatever progress there might be on tumbling, so far as our own efforts are concerned. We tried it and that's that. We did not follow through to a final polish, deeming it next to impossible, in point of time, to achieve . . . or to achieve the desired polish without resorting to the individual handling of each stone on leather or felt. And the shapes were not pleasing. Less than thirty stones out of two hundred had an appealing shape (size, too) and these we mentioned some time back. The lilac colored and brown fluorites were very pretty, African petalite, too. Some few clear quartz were nice, several coppers and chalcedonies were nice, but the bulk of the opaque varieties were anything but pretty of form. There are a few applications that would pay and is paying and that is the tumbling of turquoise and similar stones. Not everyone has oodles of turquoise to tumble . . . do you tumble?

So that's that for our tumbling. What will we do with our tumbling machine? Maybe we will roast peanuts in it unless some wiser person suggests something better. Tumbling is for the wholesale gem dealer and the method does work well for certain minerals from which attractive gem nuggets can be made.

The new mineral shop in Marlboro, New Hampshire (on Jaffrey Road) known as the Monadnock Mineral Shop, the opening of which we mentioned in the last issue, sent us a nice heavy chunk of gummite and associated minerals, zircon, uranophane and such. It really is the best gummite we have seen so far . . . from Grafton, New Hampshire. Also in the package was a nice flat compartmented box with a dozen fresh looking (no dump material) specimens not less than one inch by one inch. Three states were represented - Maine, Vermont and New Hampshire. Those who visit the shop, will see adamite in two colors from Mexico, aurichalcite with calcite, fine quartz groups from South Dakota, Mexican wulfenite and mimetite and many items of fine Jewelry. New Hampshire beryl and fluorite will continue to be a specialty in the Monadnock Mineral Shop. The dozen specimen mineral sets are selling fast, according to Miss Whitehead's letter.

In the September - October issue of ROCKS and MINERALS we mentioned that mineral specimens could be made into attractive Christmas gifts to be given to friends who are not the least interested in earth science. Paper weights made of attractive mineral specimens and moderate size bookends are appreciated by non-collectors. Desk sets if only consisting of a small but properly sized slab and fit with a penholder and pen make fine inexpensive royal looking gifts. Such a slab need not be cut rectangular in the usual way, but may merely be a nicely sawed slab polished on the top side and keeping the original rough outline of the rock specimen. Many dealers sell the pen and penholder and glue for making these office accessories.

The Renfro's Fossils and Minerals of

2901 Bomar Avenue, Fort Worth 3, Texas, sent us a very attractive paper weight made from Texas coral limestone slabs, the shell content of which is fluorescent under short and some long wave lamps. Two very excellent Texas celestites, one a small vug lined with glassy tabular crystals and a larger cabinet specimen with perfect crystals were in the very well-wrapped package. About a dozen limonite after pyrite were also in the package. All very nice specimens and deserving of mention in the M.S.G.

For every person who is anti-science or anti-intellectual there is one who is either tolerant with a casual interest or actually is active in a branch of science such as mineralogy or kindred subjects. We never mention our own mineralogical interests unless we are fairly sure such a subject would be of interest to our man. 'It must be an interesting hobby', is a statement often heard. If one thinks that there is more than one germ nipping at your subject who makes such a statement, perhaps he is the one who needs but a gentle prod to get him started on mineral collecting. A few nice gift specimens would help, but he must know more. There are booklets for the beginner, the most recent of which is now available through Ward's of Rochester, N.Y. It is aptly titled, *The Mineral Collector's Guide* and for \$1.00 (35 and 45 percent less in quantity) . . . 36 pages in all and plentifully illustrated with excellent photos on glossy paper. It is a beginner's 'must', written by Ward's friendly David E. Jensen.

Mr. and Mrs. George Papashvily, of Quakertown, Pa., (authors of the famous book and moving picture, 'Anything Can Happen') are no doubt back from a Maine collecting trip by the time this gets to the printers. George is an unusual collector in that he hunts for majestic sizes of rocks with color and durability. He does not worry about not having enough pockets; his worry is how to maneuver a two feet by two feet by four feet monolith from the tangled woods to his car or truck. . . like moving a dead whale to the taxidermist.

Adobe Crafters of Santa Fe, N. Mex. are offering 10 pounds of fluorescents for \$2.00 if you will pay the postage. This amounts to a real wholesale price and you can be sure that at least one or more of the specimens will be worth the price of the lot. Postage from Texas to say Maine would be no small item. Texas produces some of the finest short and long wave minerals seen in any complete collection. We have nearly a dozen Texas pieces in our own display and all of them are in the bright class which may be placed alongside of Franklin minerals without being 'lost'.

Light colored Jade to white, white with greenish flecks and apple green Jade as well as vivid light green is being slabbed and offered by Ron Purvis of Lytton, B. C., Canada. Send for his price list, it may be very interesting. Slabbed agates, too, are in the offer in his ad on page 409 of the July-August issue of *ROCKS AND MINERALS*. We like white Jade carvings very much and think that a brooch set with a wide thin cabochon would look rich. 'Nuff said.

This department never tires of mentioning superb Bisbee and Tiger, Arizona minerals. The Collectors Shop, Casa Grande Rd., Tucson, Arizona, can supply excellent specimens from these famous mineral localities. We know of no better way to dress up a display than with superb colorful Bisbee and Tiger minerals. Here is a way to put that expected Christmas money to good use. Maybe Aunt Min will come through again or the boss will come across with a Christmas bonus. It has been known to happen.

Mrs. John Roder of the Pinebrook Trailer Park, Hot Springs National Park, Ark., sent us a nice packet of quartz points from her state of Arkansas. There were several fine groups and quite a few single points, all very clear and well formed. Under separate cover, she sent a photo post card showing the finished stone-map of the United States in which each state was nicely formed from slabs of minerals found in those states. We contributed a few slabs to help make the map authentic in some eastern portions.

Photo post cards showing the finished project are available from Mrs. Roder at 15c each.

Mr. Thomas Ronan of the Bronx, N. Y., has asked us for directions to the Wheatley mines will have to dig and mayners, Pa., and the French Creek Mines in St Peter's, Pa. Those who venture to the Wheatley mines will have to dig and may or may not be rewarded with good cabinet specimens. It all depends on industry and luck. However, there are still many . . . a great many . . . good micros to be found there. The French Creek mines will be more rewarding. Very excellent cabinet specimens are being found there continually. Lack of space will not permit the lengthy lists of minerals for these two localities. The Wheatley Mines area is noted for its pyromorphite and anglesite and other lead-zinc-copper, iron and other interesting minerals.

Some of the exquisite micro pyromorphite is clear and terminated to points. Cabinet pieces showing white and green calcite, magnetite, pyrite, byssolite, urallite, gypsum and erythrite are the main attraction at the French Creek Mine . . . there are many other minerals.

Diopside is the mineral which has come to our attention for this writing. The blue variety, which is found in feldspar localities, is sufficiently translucent and/or or transparent to be used as a gem. Its fine blue color, greenish if chrome-diopside, is almost as pure blue as benitoite. The finest blue crystals and massive specimens come from Switzerland with some few notable types from Russia. In the United State, New England localities have produced small amounts of very fine blue pieces. White, grey, greenish and other opaque colors in crystals and massive forms are found in New York, Connecticut, New Hampshire and Maine. Though softer, usually, than feldspar, blue or green-blue diopside may be faceted into a very beautiful gem. Your favorite dealer may have a few nice pieces for immediate shipment.

This department throws a few orchids around where deserved and we try to keep the subject matter in as happy a vein

as possible. We hesitate to ride hard on any one, especially dealers, the greater number of whom we are trying to help by easing the natural hesitancy of the buyer to order by mail. However, we have a sufficient number of similar complaints and make note of one type in particular. All of you who have written to a dealer and have received no answer, please raise your hands. Well, that is not so many at that, but there are a few hands raised. Why? Why on earth does someone advertise and NOT follow through? If the dealer does not have an item wanted, it would be common good manners to write and explain, or offer something of interest. It would pay! The power of the written word is not a mere phrase. Incidentally, the latest complaint did not apply to an advertiser in ROCKS AND MINERALS! Neither did the several others we have heard about.

Odd form calcite lovers should have seen the Puerto Rican calcite which Mr. D. A. Burgess of Santurce, Puerto Rico, sent to Will Shulman. The material was recently on view at the Belz Farm, Lapidary get-together, some few weeks ago. It is a nice buff colored calcite, honey-combed with open holes perhaps an eighth inch in diameter, each hole representing tubes of coral of which the material is pseudomorphic. Yes, it is fluorescent. Gerry Shulman reports that her back still aches from portaging the canoe, the luggage, the food, the cameras and her husband, Will Shulman, during a Water-trip this summer. Gerry weighs about ninety-two and a half pounds soaking wet.

Fossil teeth intrigue us. We do not know why, excepting that perhaps any tooth that survives for so long a time deserves mention and recognition. Our own teeth seem to dissolve or crumble at the rate of one a year. We liked Mr. J. E. Moore's short but chockfull article in the July-August issue of ROCKS AND MINERALS.

Ernest Meier, of New York, whose ads appear steadily in these pages, has some very interesting gem material such as precious topazes from Ouro Preto, Brazil, India fern agate of top quality; tourmaline

in many colors; green quartz and green garnets as well as cinnamon and other colors in garnet; fine spinels and Ceylon zircons; and carved leaf ruby and sapphires. Those who are intrigued should contact Mr. Meier who will ship any item or items on approval. . . just what we have been talking about all along—the approval plan. You just cannot lose.

We dreamed the other night we were trying to locate an old gold mine in Arizona. Just before sending this script to the Editor, we received Gritzner's (of Mesa, Arizona) pamphlet on how, why and when you more adventurous souls can take a Desert Adventure Trip with

Charles Gritzner. Those who want to start planning now for a Spring desert trip should send for Gritzner's explanation of his guide service. If you do plan to go west, for goshsakes, get in on this attractive deal. We did this sleeping out under the stars in Wyoming one summer and broke ice from the water bucket each morning and boiled potatoes for three hours. . . the water never did get warm, or was it the high altitude? You will not have this trouble in Arizona, believe us. Wyoming is wonderful. If you want some excellent information send for Gritzner's Wonderful Wyoming Collectors' Guide for 25c.

NOTE ON COHANSEY QUARTZITE

See "A Double-Interest Locale", R and M, Sept.-Oct., 1953

By HERBERT and JOSEPHINE ALBRECHT

Springfield, Del. Co., Pa.

Mr. Hayes' implication is at least the second that Cohansey points are rare or unknown in Pennsylvania. Warren Yenney, our hunting companion, and we have searched our collections and found three such from near Westchester and Phoenixville. These places are forty and fifty miles and the broad Delaware from Greenwich, N. J. Three points of Cohansey quartzite from about two thousand artifacts so far checked do not make the material as common in Pennsylvania as was our impression—perhaps from picking up chips—but no doubt the high-powered local collectors can show the same or a greater percentage of finds.

As Mr. Hayes' words indicate, the various textures and colors of the quartzite can simulate other materials, especially when the fossils are inconspicuous. This may account for the lack of reports from Pennsylvania and the more distant parts of Jersey. Under the glass, however, the generous amounts of milky or taffy-colored, opaline-chalcedonic low-temperature cement in nearly or quite all the speci-

mens is an easy identification.

One of us ascribes the induration of this unusual quartzite to a local accumulation of feldspar, shells and organic matter in relatively high proportion to the quartz. Reducing and oxidizing conditions occurred in the right sequence and intensity to give a high concentration of sulfuric acid from sulfate in sea-water via pyrite. The feldspar grains and shells were largely leached, leaving much silica gel in place. This harmonizes with the large amount of space between the quartz grains.

Chert and jasper, on the other hand, were cemented by hot waters, and under alkaline conditions, modified by the presence of carbon dioxide. The chert probably replaces silica and fine feldspar in situ, whereas the jasper represents some transport of iron hydroxide and silicic acid.

Some further discussion of Indian materials, their distribution and quarry sites, in southeastern Pennsylvania is being sent to the "Pennsylvania Archaeologist".



FOSSIL DEPARTMENT

Conducted by A. ALLEN GRAFFHAM

Box 419, Ardmore, Oklahoma



By the time this material gets to you readers, the fall collecting season will be about over, and no doubt many new and exciting fossils will reside in your cabinets.

We have just returned from a 12 day very good due to drought conditions which homa and Kansas. Collecting was not very good due to drought conditions which now exist in that area. Fall rains are due however and these should help collecting a lot. We did get a nice lot of crinoid crowns at one locality where we always dig. At such a locality it matters little whether it rains or not.

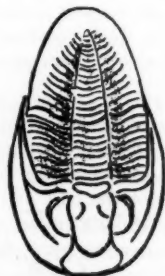
We were pleasantly surprised at the Ross Quarry at Ottawa, Kansas, Sunday, September 27th, to find Mr. A. C. Carpenter of Ottawa guiding the members of the Lawrence, Kansas Rocks and Minerals Club. Very large charges of dynamite had been exploded the evening before and plenty of fossils as well as crystal cavities were exposed for collecting. The rocks exposed in the quarry are of Pennsylvanian age. Both the Plattsburg limestone formation and the Stanton limestone formation are exposed in the quarrying. The Plattsburg limestone formation is the lowermost massive bed in the quarry and is separated from the Stanton formation above by a black shale layer (Vilas Shale). The best fossils occur in the upper portion of the Plattsburg formation and it is also in this bed that numerous crystal-filled cavities are found. Calcite and dolomite are the common crystals found with pyrite, marcasite, barite, chalcopyrite and aragonite being the rarer forms.

Brachiopods are the most common fossil in the quarry and this locality is famous for the large well preserved productid types. These are found in a massive layer

at the top of the Spring Hill Limestone (top member of the Plattsburg formation). Below this bed there is a layer about one foot thick that is almost entirely made up of the brachiopod, *Composita*. Occasionally one of these will be found that is hollow and shows the spires which are characteristic of this form. This bed also produces a few lovely large gastropods, *Enconospira*, the pelecypod, *Aviculopecten*, and an occasional cephalopod.

Below this zone is a crumbly oolite (locally called "Oatmeal rock") that produces the most beautiful brachiopods in the quarry. *Dialasma* and *Punctospirifer* are those commonly found and the preservation is really remarkable. This horizon also produces corals, an occasional cephalopod and pelecypod, and carries the crystal cavities which are formed because of small, very porous reef-like structures in this rock.

Trilobites are found in two horizons in the quarry; at the top of the Spring Hill limestone, and at the base of the Captain Creek limestone, which is the lowermost bed of the Stanton formation. The trilobite in the Spring Hill is *Ameura major*



Ameura

The trilobite most commonly found at Ross Quarry.

and is found commonly as disjointed portions of the exo-skeleton. Cephalons with free cheeks attached are not too uncommon in this bed, and very rarely a complete specimen is encountered. The trilobite which occurs in the Captain Creek limestone is a small form, *Didymopyge lansingensis*. It is found as complete en-rolled individuals, but the horizon in which it occurs is about $\frac{1}{2}$ inch thick and must be weathered perfectly to produce complete specimens. We did not find any on this visit to the quarry.

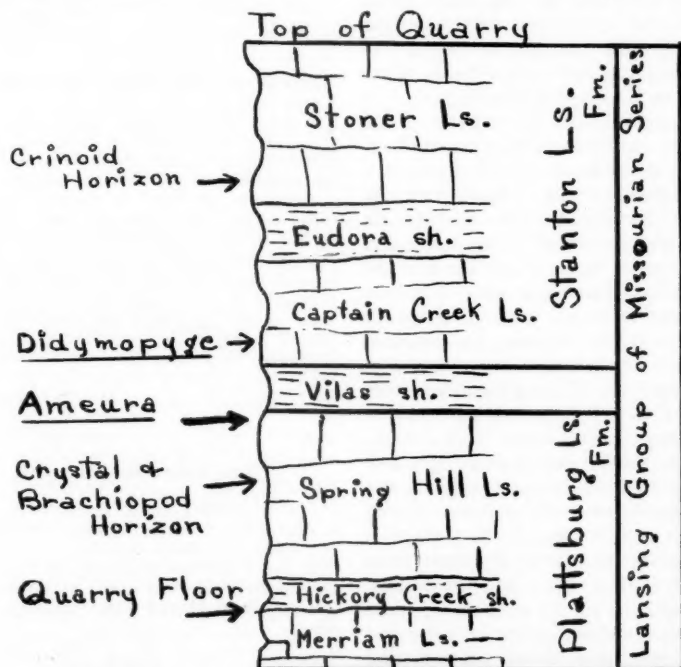
Crinoids are fairly common in the yellow beds in the lower portion of the Stoner limestone which is the middle member of the Stanton Formation and the highest bed exposed in the quarry. These are usually dorsal cups only, but complete crowns have been found. The forms found here are usually rather small and the preservation is not too good.

Some rather lovely nautiloid cephalopods have been found in the quarry.

Sponges and shark teeth are fossils which also occur but represent a rare element in the fauna. Conularids have been found in the Eudora shale along with very fragmentary fish remains.

After leaving the quarry the Lawrence group was guided to a near-by outcrop of Lawrence shale by Mr. Carpenter, and many beautiful fossil plants were found. The Lawrence shale (so named because of outcrops near the town of Lawrence) is a land deposit of Pennsylvanian age and produces fossil ferns, and other plants common to this geologic age. The rare forms in this formation are fossil insects (usually a form of ancient cockroach), and seed pods and nuts of some of the Pennsylvanian plants. The ferns are usually a dark brown on a cream colored sandstone background and are among the most beautiful fossil plants in the United States.

In a recent letter, Mr. Raymond Hibbard of Buffalo, N. Y., tells of a fossil collecting trip to Michigan. He writes



Geologic section exposed at the Ross Quarry, Ottawa, Kansas.

that he had very good luck and found many fossils of Devonian age. Mr. Hibbard was recently made honorary curator of paleontology at the University of Michigan.

A request was received from one of our readers for complete Mississippian trilobites. Anyone having these for exchange, please write the editor.

Check with your dentist for his old discarded tools. The scrapers and other small tools used by dentists make very excellent cleaning tools for fossils. Usually one must regrind these to make a more useful tool for fossil cleaning, but some can be used just as they are.

When you find fragile or broken specimens in the field which you would like to save or repair, the heavy grade of aluminum foil will be found to fill the bill. Large sheets can be folded up and carried in your collecting bag. Small sheets can be stacked up and carried in an envelope in a pocket. We often wrap crinoids, trilobites, etc., in small sheets of metal foil to prevent damage on the trip home. They can then be dropped in a collecting bag with other fossils without fear of bruising or breaking.

We recently visited the museum of the University of Texas at Austin. The outstanding invertebrate exhibit there is a slab of Austin Chalk covered with the starfish, *Austinaster*. The starfish are about two and one-half inches across and the slab shows at least one hundred individuals in a marvelous state of preservation. The vertebrate displays, especially the Triassic reptile skeletons, are outstanding. If you are in the vicinity be sure to see this museum. Visiting hours are from 10 A. M. to 5 P. M.; I do not recall if the building is open seven days a week.

We are leaving on vacation in a few weeks for New Mexico and Arizona. We will probably visit the famous crinoid locality at Lake Valley, N. M., which is one of our favorite collecting spots. Lake Valley is a ghost town and the nearest accommodations are 40 miles away, so do not go there without plenty of water and camping equipment if you are expecting to stay overnight. The crinoids are found

in beds of Burlington age (Mississippian) along with some very fine brachiopods and an occasional complete trilobite. Only cups of the crinoids are commonly found although we did get two crowns in four days of previous collecting. The cups weather out of marly layers and are found on the talus slopes in the hills to the north of the old "ghost town". Watch out for snakes, and also old mine shafts which are open and unfenced. Lake Valley was once a famous silver and manganese mining town. One of the largest silver nuggets in the world was found in the early days at this locality.

Advertisers Nice to Deal With!

Editor R & M:

Please enter my subscription for another year. Can't get along without R & M. I thought my first number several years ago was tops but it gets better every year. I'm glad you added the Fossil Dept. I like it very much, in fact I like all of the magazine. The advertisers are nice to deal with. All with whom I have done business did more than they promised.

J. R. Messamore
380 Summit St.
Colby, Kansas

Aug. 19, 1953

Kids Don't Know What They're Missing!

Editor R & M:

I would like to suggest that a list of mineral enthusiast's names be published inviting correspondence with others. Perhaps a small fee could be charged for this service.

I became interested in minerals while in grade school, and, although I have only subscribed to your wonderful magazine for three years, it has helped me a great deal. R & M is well worth the time and money and means a great deal to an amateur as I. Congratulations on your fine work and good luck in the future. I only wish more kids my age were interested. They don't know what they're missing!

Miss Elaine Perry
Box 27-E-RR #2
Loveland, Ohio

Aug. 11, 1953

Sure Knows His Minerals!

Editor R & M:

I am enclosing check for \$3.00 for subscription for Kenneth Keester, 310 Oshkosh St., Rapid City, South Dakota.

Kenny is only ten years old, but sure knows his minerals. He has read all of my back issues of R & M and thinks the magazine is tops.

W. L. "Bill" Roberts
Rise Building
Rapid City, S. Dak.

June 3, 1953

THE AMATEUR LAPIDARY

Conducted by **COMMANDER JOHN SINKANKAS**

Certified Gemologist, American Gem Society

1107 S. Oakcrest Road, Arlington, Va.

Amateur and professional lapidaries are cordially invited to submit contributions and so make this department of interest to all.

DANGLE EARRINGS

By **LUCILLE SANGER**

Co-Author of 'Cabochon Jewelry Making'

Any female rockhound, with ear lobes worthy of the name, can always use another pair of earrings. With short haircuts earrings are important and dangle earrings especially come into their own. We should like to see men wear them! We have always boosted jewelry for men and are glad to see that more men are wearing bracelets and jeweled belts.

The main problem of construction in the dangle type earring is to make them as light in weight as possible. If made with a bezel, and especially if there is decoration of the metal besides, the whole piece can be of considerable weight. This can be overcome by drilling the lower stone and setting a peg to attach it to the button. In this new type of earring we have dispensed with both drilling and bezel.

Any type of stone which takes a good polish may be used but this style is made to show off the beauties of the translucent stone. Hanging as they do gives an excellent opportunity for the light to shine through. This is one piece of jewelry where iris is really attractive. We also like our old favorite - blue chalcedony.

The following is the method for making a 'double dangle'. Of course only a single may be used if desired as the method is the same in either case.

Pick the stone to be used, a single slab to be cut into blanks. If different slabs are used, there might be a difference in the thickness and this will make cutting matched stones harder to do. The slab must not be less than a quarter of an

inch in thickness and more does no harm. Thickness can always be ground away but never may any be added. Cut six blanks from the slab.

On four of the blanks mark around a dime with a brass or an aluminum pencil. On the other two use a nickel for a template. Shape a pair of the dime stones first, cutting them cabochon on each side and leaving a flat edge. Now cut the second pair of dime stones, but cut them smaller than the dime size, and slant the edge and leave the bottom flat. Now cut the nickel ones, make each side curved and leave the edges flat as before. Sand and polish them and after they are finished, give them a final fillip on the muslin buff with jewelers rouge.

Use a pair of sterling earrings of the type which have tiny rings for attaching dangles. The smallest pair of stones are to be mounted to the buttons with prongs. Use a piece of 20 gauge wire, cutting it a quarter of an inch longer than the diameter of the stones. Cut 6 more pieces of wire each equal to half the length of the first piece. Solder them together as shown in Figure 1. Place a stone on the wire star to measure the wire which can be turned up to form the prongs. Turn them up with the pliers into vertical position. Repeat for the other stone. Lay these pieces aside for the present.

Using a hand tool, cut a recess in the outer edges of the remaining stones. The appearance of the edges is shown in Figure 2.

Anneal a length of wire, 22 gauge. For the dime size stones, cut a piece of wire long enough to go around and yet make

two rings from the same piece. Place the middle of the piece of wire on the round-nose pliers and bend the sides together. Using the flat pliers, take two twists in the wire forming a ring with two long ends of wire leading from it. Run the wires around the indentation of the edge of the stone and pull them together tightly with the flat pliers.

Make two twists in the wire, pulling it snugly around the edge of the stone. Make a ring with the round nose pliers. Cut the ends and fit them neatly together. Open the ends of the ring and slip them through the tiny ring on the earrings. Close them. Cover the stone with a thick layer of wet tissue and solder the ring. Repeat with the other dime-size stone. As they now hang from the earrings there will be an empty ring at the bottom of each stone.

Now cut a length of wire for a nickel-sized stone. Hold the two ends together with the right hand. With the left hand place the stone inside the wire so that the wire follows the indented edge. Hold the wire in place with the left hand. Take the flat pliers in the right hand and pull the wire tightly to the stone and make two twists. Form a ring with the round-nose

pliers. Cut the ends neatly and fit them together. Open them and slip into the small ring at the bottom of a dime-size stone. Cover the stones with wet tissue and solder the ring. Repeat with the other earring.

Soft solder the prong mounting to the earrings buttons and set the stones. Trim all the prongs to the same height. File the prongs slightly and smooth with an old piece of silicon carbide cloth but be careful not to scratch the stones. This piece cannot, of course, be pickled, nor does it need it. It can be polished with electro-silicon or any good silver polish and a soft cloth. Wash thoroughly and rinse well after polishing. See Figure 3 for position of set stones.

Some variations on this design are the oval, long and short; the diamond shape; the square; the rectangle and other asymmetrical four-sided figures. The edges of the oval stones must be indented the same as for the round ones and the edges of the cornered stones may also be worked the same way. However, an interesting treatment for the stones with corners is to indent the edges only at the corners, leaving the wire visible along the remainder of the edges.

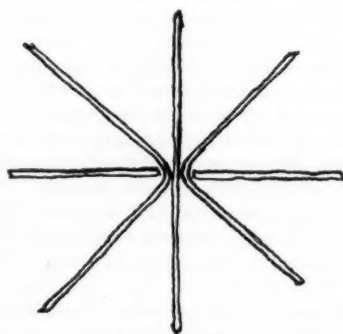


Fig. 1



Fig. 2



Fig. 3

THE SAND COLLECTOR

Conducted by PETER ZODAC, Peekskill, N. Y.

Items on Interesting Sands Wanted. — Please Send Them In.

Cave Sand from Diamond Cave, Ark.

Diamond Cave, located in Newton County, near Jasper, Ark., is said to rank with America's best caves. From this cave we have a sand sample that was collected for us by Mrs. John McCarty, 5824 E. 12th St., Kansas City 3, Mo. This is a medium to fine grained gray sand consisting entirely of gray calcite (some tiny grayish calcite stalactites also included).

Creek Sand from Golden, Colo.

Stuart S. Merwin, 1010-12th St., Golden, Colo., sent us a sand sample from his town. The label with the sample reads: "From Clear Creek in Golden (Jefferson Co.), Colo. There was a time when there was gold here but after having been thoroughly panned, it is no more."

This is a medium grained brown sand consisting chiefly of quartz (brown, colorless, smoky) with some silvery muscovite flakes, black biotite flakes, and black magnetite. The brown quartz which gives the sand its color, looks rusty brown under the magnifying glass. No gold could be spotted in the sample.

Black Sand from St. Augustine, Fla.

"Under separate cover I am mailing you a sample of the so-called black sand of St. Augustine Beach (St. Augustine, St. Johns Co., Fla.). This sand is a mixture of ilmenite, zircon, rutile, and quartz—possibly some sea shells—and was gathered directly in front of my house on the ocean beach."—paragraph in a letter, dated Aug. 5th, 1953, from T. B. Gillespie, Star Route 2, St. Augustine Beach, St. Augustine, Fla.

This is a fine grained black sand consisting chiefly of black ilmenite, with dark red rutile, colorless quartz, and pale brown zircon that fluoresces orange under the Mineralight. No sea shells were noted.

The Editor of R&M plans to visit Mr. Gillespie during the early part of December and do some collecting with him in his section of Florida.

Beach Sand from Nantucket, Mass.

Emily and Joe Karolack, of Peekskill, N. Y., spent a few days in Massachusetts last September, touring Boston, Cape Cod, Nantucket Island, etc. Nantucket Island, (15 miles long) a famous summer resort, lies in the Atlantic Ocean about 25 miles S.E. off the mainland of Massachusetts. From Jetties beach, on the north shore of the island, Emily collected for us a most generous sample of beach sand. This is a coarse gray sand consisting almost entirely of colorless and smoky quartz (a little brownish also present) plus a small amount of silvery muscovite flakes and some purple, also white, sea shells.

Emily is a cousin of the Editor of R&M and she has supplied us with many sand samples, minerals, etc. See the item about her in the July-Aug. 1953 R&M, page 365, under Louisiana.

Creek Sand from Platin, Mo.

From Platin Creek in Platin, Jefferson Co., Mo., we have a sand sample that was collected for us by Linus C. Hoffmeister, 504 W. Ripa, Lemay 23, Mo.

This is a coarse brownish sand consisting almost entirely of quartz (brownish, colorless, smoky, white and brownish chert). Some brown limonite and a tiny amount of black magnetite also present.

Magnetite Sand from Pyramid Lake, Nev.

Pyramid Lake in Washoe County, is the largest lake in Nevada. From the south shore of this lake we have a sample of magnetite sand that was sent us by the Fallon Rock and Gem Club, 298 S. Taylor St., Fallon, Nev. In her letter, dated Aug. 31, 1953, Mrs. Harry Ringstrom, representing the Club, writes:

"The magnetite sand from Pyramid Lake is very difficult to locate since the

level of the lake fluctuates considerably, but if conditions are right it appears in narrow bands at the water's edge on the south side of the lake about 8 miles from Nixon."

This is a fine grained black sand consisting chiefly of black magnetite with minor amounts of smoky quartz, green epidote and brown zircon that fluoresces orange under the Mineralight.

Gold Bearing Sand from Warren, N. H.

Last June we received a most interesting sand sample from Mary J. Stidnick, 96 Highland St., Plymouth, N. H. The label with the sand reads: "Gold bearing black sand panned from Baker River, Warren (Grafton Co.), N. H., Sept. 1952."

This is a reddish-black medium grained sand consisting chiefly of black magnetite and pinkish to red garnet with small amounts of smoky quartz, green epidote, and one tiny yellow gold nugget.

Fossil Sand from Breckenridge, Texas

In the last issue, on page 488 (under Texas) mention was made of some fusulina limestone that was sent us by Hubert Williams, 306 W. Walker, Breckenridge, Texas. Since that issue was printed Mr. Williams has sent us more and better specimens and a good sample of fossil sand. In his letter, dated July 20, 1953, Mr. Williams writes:

"The material (sand) in the glass jar was scooped up from an ant hill. The ground is completely covered with this stuff. We watched red ants trying to carry off the loose grains. This fossil sand is found on the side of a tiny hill in a wash at the head of a tiny creek (near Breckenridge, Stephens Co., Texas), about 10 feet below ground level."

This is a very coarse dark gray sand consisting entirely of loose fossils, chiefly fusulinas (fossils which look like grains of oats) and crinoids with some corals, etc. The fossils are chiefly dark gray to gray in color, are of good quality, and some fluoresces brown under the long wave.

Beach Sand from Cape Prince of Wales, Alaska

"Some few weeks ago Mr. Chas. S. Knowlton, of Fullerton, Calif., wrote about the sand he had from the easternmost point of the U. S. in Maine, and sands from other Ultima Thules of our great country.

"In replying, I told him I would try and get some sand from Cape Prince of Wales, Alaska, the most westerly point of North America.

"The sand arrived yesterday—wet—my Eskimo acquaintance having evidently followed out my instructions to get it at the very water's edge of the point at the Cape. Mailed Knowlton his sample and will get one in the mail tomorrow for you."—letter dated Aug. 12, 1953, from Frank H. Waskey, Dillingham, Alaska. (Mr. Waskey has since returned to the States and is now residing in Olney, Md. —P.O. Box 195).

This is a fine grained gray sand. It consists chiefly of quartz, (colorless, smoky), black biotite, silvery-white muscovite, with tiny amounts of black magnetite, green epidote, and red garnet.

Beach Sand from Deer Island, Canada

From Cummings Cove, Deer Island (in the Bay of Fundy), New Brunswick, Canada, we have a sand sample that was sent us by Stanley Goding, P. O. Box 815, Springfield, Vt.

It is a very coarse, dark gray sand consisting chiefly of quartz (smoky, milky, clear, and reddish), red microcline, and the following rocks—granite (gray, red), quartzite (red), and sandstone (gray, red). A tiny amount of black magnetite also present. Although the sand is not attractive, we are very glad to get the sample.

Ocean Bottom Sand, Ireland

One of the most interesting sands in our possession was donated by Earl L. Newell, 127 Washington Ave., Chatham, N. J., when he and Mrs. Newell called on us Mon. Sept. 21, 1953. Mr. Newell is connected with the Western Union Telegraph Co., which owns the submarine cable that stretches between Hearts Content, Newfoundland and Valencia, Ire-

land. About Aug. 20, 1953, the submarine cable repeater was pulled up by a cables ship, and as can be imagined, lots of sand was found in the superstructure of the repeater. It was some of this sand which Mr. Newell obtained and which he personally brought us. The point from which the sand comes is 191 nautical miles (about 221 miles) west of Valencia and 605 fathoms (3630 feet) below the top of the water (the cable of course was lying on the bottom of the Atlantic Ocean).

This is a dark gray medium grained sand consisting almost entirely of calcareous sand (remains of small marine animals). Most of the sands are rounded, like oolitic sands—some are broken open. A number of the sands are elongated, curved, flat, or in other forms. A few grains of colorless quartz (also gray, and red chalcedony) and dull black magnetite are also present; some of the magnetite is imbedded in the quartz.

Olivine Sand from Tule Lake, Calif.

In the northeastern corner of Siskiyou County, in northern California, is Tule Lake (now dry). The lake was said to have worn away the side of a mud volcano. From the locality we have a sand sample that was sent us some few months ago by Thomas A. Oleszkowicz, 6969 Parkwood Ave., Detroit 10, Mich. The label with the sample stated that the sand comes from the tuff of a volcano at the edge of dry Tule Lake, Siskiyou Co., Calif.

This is a brownish medium grained sand consisting of pale golden gemmy grains of olivine, with some coarse grained red opaque garnet and a tiny amount of black magnetite.

Quartz Sand from Milltown, S. D.

While on a recent field trip to Milltown, Hutchinson Co., S.D., Mrs. E. P. Olson, Box 425, Beresford, S.D., collected a number of claystone concretions, some of which were sent in to R&M. These concretions were odd in that they were coated entirely with quartz grains much of which had fallen off in transit; though the quartz grains were easily removed from a concretion, more were

underneath. This is a dark brown medium grained sand consisting entirely of dark brown ferruginous quartz.

River Sand from Donges, France

"Under separate cover I am sending you a small sack of sand which I picked up this summer. Although I do not collect sands, your column in *ROCKS AND MINERALS* is always interesting to read and I know you are interested in samples from many places.

"The sand I am sending came from Donges, France, a little town just upstream from St. Nazaire on the river Loire. The sand came from dredged fill that was being made and represents materials originally deposited in the bottom of the river. The Loire River runs through numerous rock types on its way to the sea (Atlantic Ocean), so the sand may contain some interesting constituents."—item in letter dated Sept. 9, 1953, from Woodland G. Shockley, Waterways Exp. Sta., Vicksburg, Miss.

This is a dark brown coarse sand. It consists chiefly of quartz (smoky, brownish, reddish and gray chalcedony, limpid rock crystals, brownish agate), black biotite, silvery muscovite, and dull black magnetite.

Donges is on the north bank of the broad estuary of the Loire River.

Shell Sand from Pitcairn Island

Pitcairn is a small island in the South Pacific that was colonized by mutineers from the British ship "Bounty" and Tahitian natives, in 1790.

From this tiny island, said to be only $1\frac{1}{4}$ sq. miles in area, we have a sample of shell sand that was sent us by Paul H. Steele, Box 935, Sacramento, Calif. His letter, dated June 28, 1953, reads as follows:

"I am sending you, under separate cover, a vial of sand from Pitcairn Island. A definite location at the island is not known from which this came. It represents sand jarred loose from a number of beach shells that were sent me from that place. I imagine the shells were collected in and around Bounty Bay, the landing place at the island; and as you say, the place has no real beach. Such "beach

shells" often have more or less sand in them which is loosened in the box in transit. Shall be glad to save any such material from other "out of the way" places for you."

This is a coarse grayish sand consisting entirely of sea shells—white, pink, brown. Under the long wave light, some shells fluoresce orange, some yellow, some green.

Continuing the above letter, Mr. Steele writes:

"My hobby interests have gone mainly to conchology, particularly the genus *Cyp-raea* (cowry shells) and I have a very extensive collection of these. This has been a result of correspondence with shell enthusiasts in some far off places of the world. As a rule a shell collector spurns beach worn shells. He wants live shells—taken with the live animals in them which have not lost color and shape from laying on a beach.

"I have a correspondent on Easter Island (in the South Pacific) and will try to get you some sand from Anakera Bay where there is a good beach, and from which I have shells. However a regular boat goes there only once a year so it will be quite a while before that is possible."

River Sand from Seoul, Korea

From Floyd Davis, 701 Main St., Moosic 7, Pa., we have a sand sample that comes from the Inchon River in Seoul, Korea.

This is a coarse gray sand. It consists chiefly of quartz (clear, smoky, and milky) and feldspar (pink, also white), with minor amounts of black biotite, whitish muscovite, and very small amount of black magnetite.

Beach Sand from Afao, Samoa

Afao is a small village on the west coast of Tutuila Island, Samoa Islands. The Samoas are a group of islands in the South Pacific and Tutuila is an American possession. From the beach at Afao we have a sand sample that was sent us by Max Haleck, Pago Pago, Tutuila, American Samoa.

This is a very coarse light brown sand consisting chiefly of sea shells and coral (each white to brown and rounded) with some black magnetite and black basalt. Some of the shells fluoresce cream under the long wave light.

Beach Sand from Singapore

The following paragraph is taken from a letter dated July 27, 1953, from Eugene G. Christin, Apartado 828, Lima, Peru.

"On July 17, 1953, I sent you by registered mail a tin cigarette box with sand from the beach at Singapore. There is a seaside hotel there and the sand comes from that beach. My office was moved and I lost the sand for over a year but it turned up in its original package."

This is a coarse brownish sand (not attractive). It consists entirely of quartz (brownish, smoky, colorless).

Singapore is a city on the island of the same name. The island lies off the southern extremity of the Malay peninsula from which it is separated by the Strait of Johore which is 40 miles long and from $\frac{1}{2}$ to 2 miles wide. The island is 25 miles long from east to west and 12 miles wide; the city is on its south side (on Singapore Strait).

River Sand from Swaziland, South Africa

From the Ngwavuma River, near Nsoko, Swaziland, South Africa, we have a sand sample that was collected for us by Edward M. Graf, P. O. Box 1432, Paterson, N. J., while on a visit to South Africa during the early part of this year.

This is a very coarse brownish sand. It consists chiefly of brownish to smoky quartz with some dark brown limonite and a tiny amount of black magnetite.

Beach Sand from Saundersfoot, Wales

Saundersfoot, on the west bank of Carmarthen Bay, in southwestern Wales, is a little seaport that has a good sand beach. A sample of the beach sand was sent us last spring by P. D. Boerner of Australia, who with his wife had been touring the British Isles; they have since returned to Australia and we do not know their new address.

This is a fine grained brown sand consisting chiefly of sea shells (brown, white, bluish) and colorless quartz. It is the preponderance of brown sea shells which gives the sand its color.

Beach Sand from Arran, Scotland

Arran is a picturesque mountainous island in the Firth of Clyde (Western Scotland). The island is about 20 miles long (north and south) and 12 wide

(east and west). On the northeast coast of Arran is Corrie and from its beach we have a sand sample that was sent us by Sandy Ramsay, 1015 Aikenhead Rd., Kings Park, Glasgow S4, Scotland.

This is a very coarse dark grayish sand. It consists of quartz (smoky, colorless), red hematite, brown limonite, black rusty magnetite, gray to pinkish microcline, gray granite, and red slate.

SOME MINERAL DISCOVERIES IN POLAND

By TOMASZ J. TURLEY

Chicago, Illinois

Recently an interesting discovery of new minerals in Poland is described in *Acta Geologica Polonica*, which is issued in Warsaw, Vol. 1, 1950.

In *Acta Geologica Polonica* a description is given of results obtained by scientific workers of the Geological Museum in Warsaw in the investigation of a mineral vein from the old stope in Mount Jarmuta near Szczawnica, Pieniny, Southern Poland. The stope investigated is 72 m. long. At its entrance a sedimentary rock appears, farther on there are metamorphic rocks and andesites. On all extent of the stope a mineral vein passes, a thickness of which does overpass 4 cm. The vein consists of limonite in which galena crystals are visible. The material of the vein was segregated by means of panning and heavy liquids. The microanalytic methods were used for determination of minerals present in grains smaller than 1 mm. diameter. The results of the investigation in which considerable quantities (1 kg. of the vein material) have been used, are as follows:— limonite, galena, pyrite, pyrrhotite, quartz, apatite, gypsum, calcite, native gold, copper, silver, mercury (a little bullet 0.3 mm. diameter), lead, chalcopryite, bornite, covellite, malachite, cerussite, arsenopyrite, sphalerite.

The chemical analysis of 4 samples taken from 4 different places in the stope confirms the presence of gold. The amount of gold oscillates between 0.0005-0.0003 percent, silver 0.003 per cent, copper 0.16 per cent.

It must be emphasized that gold and mercury are very rare minerals in Poland. Definite information about finding of gold has been coming from Lower Silesia. Traces of mercury has been found in Tatra Mts.

This new occurrence of native gold and mercury in Southern Poland has, perhaps an entirely scientific significance.

References

1. Jan Wojciechowski. Native gold and associated ore minerals of mineral vein near Szczawnica. *Acta Geologica Polonica* Warsaw, Vol. 1, 1950.
2. S. Malkowski. Le Metamorphisme du Contact et le Filon Metallifere dans le Mont Jarmuta Presde Szczawnica Comptes rendus dela Societe de Sciences de Varsovie. 1918.
3. Zepharovich, Mineralien Osterreichs Wien, 1859.
4. Jozef Siemiradzki. *Geologia Ziem Polskich*, Lwow, 1903.

Club and Society Notes

Attention Secretaries—Please submit neat copies. Give dates and places of meetings. Check names for correct spelling.

East

Mineralogical Society of Pennsylvania New Appointments

An executive meeting was held at the home of President Dr. Arthur Hopkins, 741 Beacom Lane, Merion, Pennsylvania.

The following appointments were approved: Edna Ennis is to be in charge of swaps and give-away specimens. She is to contact 5 members for each field trip to bring their donations. Clara Thomas, Martha Hopkins and Martha Irvine are to act as a hostess welcome committee which will greet and introduce members and guests. Dr. John Price was appointed to the field trip committee. Russell Bell is the new Chairman of the Lapidary section. Leonard Duersmith, John Price and Harry Ranck are to arrange a pertinent exhibit for each field trip of the type of minerals found in the area.

Lapidary Section Meeting

On Sunday, September 20th, the lapidary section met at the Quarry Garden Farm, home of Charles and Gene Belz, to arrange a program for the coming year.

Departing from the pattern set last year wherein various members of the group became Sunday experts of the Gemmy Minerals, it was decided that a series of workshop meetings would be held at the homes of the members. These meetings will be arranged between field trips so that members can devote all their time searching for specimens.

The first such meeting will be held at the home of the chairman, Russ Bell, 320 Kent Road, Bala Cynwd, on Sunday, October 25th at 2 P.M. Members of the group are to polish a cabochon agate 1 x 1½ inches either regular or free form. At this meeting the group will explain what methods they used in polishing their particular specimens.

Ellen Pietsch will demonstrate a simple method or wrapping the polished cab in silver or polished wire.

Later meetings will be set up according to locality so that the newer members will learn from the experienced jewelers or lapidists in their area.

Russ Bell, Chairman
Lapidary Section.
320 Kent Rd., Bala Cynwyd, Pa.

Pennsylvania Mineralogical Society Field Trips

On Sunday June 14th, 183 members and friends of M.S.P. turned out to explore the

ore dumps of the Bethlehem Steel Corporation's Cornwall mine. They invaded the mine in 58 cars. Fifteen members of the Newark Mineralogical Society and Jack Parker's class in mineralogy at the Academy of Natural Sciences of Philadelphia attended.

Some of the minerals found were garnets, pyrite, chrysocolla, lodestone, magnetite, chalcopyrite, serpentine, red hematite, malachite and byssolite.

Swapping went along at a great rate as usual and those of us lucky enough to swap with Gene Orner did very well, getting some of the rarer Cornwall minerals from Gene's superb selection.

The group were lucky to have Mr. Ray Orner as guide and were thankful for the patience he exhibited in sharing his great historical and mineralogical knowledge of the Cornwall mine with us.

Our most heartfelt thanks go to the Bethlehem Steel Company, Cornwall division, and to Mr. Shale for granting permission and to Charles Belz for making the arrangements.

Everyone enjoyed the good weather, the fine companionship and the mineral hunt.

Ninety members and friends of M.S.P. accepted the invitation of the Pennsylvania Power and Light Company to visit their quarry, power installation and dam site on Sunday, July 12th.

Dr. Richmond Myers, the company geologist, gave an interesting talk on the geological formation of the section and acted as host on the industrial trip.

Harold Tomlinson and W. Leigh Smith's exhibit of "thin sections" of the country rock under the petrographic microscope was enjoyed by the membership, who were amazed to see such brilliant colors in the drab country rock.

We extend our thanks to the Pennsylvania Power and Light Company and to Dr. Richmond Myers for a most successful and enjoyable trip.

August Field Trip

About one hundred members of M.S.P. met and collected at the French Creek Mine near St. Peters, Pa., on Sunday, August 16th.

It was a perfect day for collecting and the pleasant breeze carried the busy sound of hammers breaking rock.

Mr. and Mrs. William B. Gray of Washington, Pa., took the distance record and it was fun meeting the collectors from the Western part of the state.

We thank Mr. Peter Chonka for graciously giving us permission to make the trip.

Again this old location proved it was still alive with good collecting material.

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Huge open pit of the Bethlehem Steel Corporation iron mine at Cornwall, Lebanon Co., Penn.

(Photo by Harold Evans)

September Field Trip

Thanks to the firm of J. Robert Bazeley, Inc. of Pottstown, Pa., M.S.P.'s field trip committee was able to arrange a field trip to the St. Clair Coal Strippings on September 12th.

Despite the chilly weather 91 members and guests combed the workings with marked success, finding wonderful fossils from the Carboniferous Era and fine specimens of the minerals indigenous to the area.

Edna Ennis did a great job with free swaps. The table was loaded with give away specimens, among these apophyllite on pectolite, a new find from Prospect Park, N. J.

Bill and Edna Hunt arranged a beautiful exhibit of the local minerals and set up a microscope to view the smaller specimens.

Everyone had a good time and regretfully departed as the sunset vividly painted the sky.

IN MEMORIAM

Member, Frank Hall was called to the Upper Quarry on August 19th. The Great-est Collector needed a combination mineral collector and magician.

We mortal M.S.P. members will miss Frank's wry sense of humor, his magic and love for people.

Before he left, perhaps having a premonition of what was to come, he said to a fellow member, "I wonder if the doctors will find me as funny on the inside as I look on the outside."

We hope the collecting is good in heaven.

Rockland County Mineral & Gem Society

The Rockland County Mineral & Gem Society meets at 8 P. M. on the last Friday of each month in the Finkelstein Memorial Library in Spring Valley, N. Y.

March Field Trip

The Society visited a locality near Roxbury Falls, Conn., where some very good specimens of Garnet were obtained on March 14th. Also found on this trip were specimens of Quartz Crystals, Cyanite, and Hornblende.

March Meeting

The feature of the March meeting was a discussion on Agate by Mr. Chester Pomeroy of Spring Valley. Mr. Pomeroy is well known locally for his fine lapidary work.

Five new members were elected to the Society. They were: Mr. & Mrs. William Babcock, Jr. of Spring Valley; Mr. Herbert Sperber of Nyack; Mr. George Papcum, Jr. of Sloatsburg; and Mr. Walter J. Hill of Grand View.

The members voted to give a gift subscription of ROCKS and MINERALS to the Finkelstein Memorial Library.

April Meeting

Miss Martha Morse of Nyack, N. Y., gave a talk on "Working With Silver". To illustrate her talk, Miss Morse displayed many

beautiful articles of jewelry which she had made. Miss Morse is well known for her fine work, and has taught silver work at the Nyack High School.

At the April meeting Mr. George Weeks of Airmont, N. Y., led a discussion period on Calcite and Aragonite.

Two new members were elected. They were: Mr. Berry Hoffman of Suffern, N. Y.; and Mr. David Cohen of Suffern, N. Y.

May Meeting

Plans were discussed for future field trips and other club activities. A field trip to Haddam's Neck, Conn., was scheduled for June 13th.

June Field Trip

Members of the Society journeyed to the Gillette Quarry in Haddam Neck, Conn. Those attending the trip had a very successful day, finding specimens of Tourmaline, Muscovite, Columbite, Albite and Manganapatite (which fluoresces orange).

June Meeting

Colored slides of Paracutin Volcano in Mexico were shown by Mr. John Weitmann of Pearl River.

Mr. Ted Schoen, a member of the New York Mineralogical Society, was a guest at the meeting, and showed some very interesting radiographs of radioactive minerals.

Five new members were elected: they were: Mr. & Mrs. Louis Collyer of West Nyack; Mr. Lincoln Waldron of West Nyack; Mr. David Flannery, Suffern; and Mr. Richard Case of Pearl River.

This meeting also featured a Grab Bag in which all members placed wrapped specimens, and from which every one took a turn drawing.

July Field Trip

On July 11th the members journeyed to the Buckwheat Mine Dump in Franklin, N. J. All those attending the trip were well rewarded with finds of the usual fluorescent Franklin minerals.

July Meeting

Nominations of officers for the coming year were in order. Revisions of the By-Laws were voted upon and accepted.

August Field Trip

The Society traveled to a Siderite mine near Roxbury, Conn. Fine specimens of Siderite, Pyrite, Garnets, and Sphalerite were found.

August Meeting

There was the Annual Meeting and officers were elected as follows:

President—Mr. Gilbert Pugsley, New City, N. Y.

Vice-Pres.—Mr. Louis Collyer, West Nyack, N. Y.

Sect.-Treas.—Mr. Lincoln Waldron, West Nyack, N. Y.

Director, 3 years—Mr. George Weeks, Airmont, N. Y.

Jr. Member Representative — Mr. Robert Pugsley, New City, N. Y.

Alt. Jr. Rep.—Mr. David Hill, Grand View, N. Y.

Corresp. Sect.—Mrs. Louis Collyer, West Nyack, N. Y.

Delegates to Eastern Fed. Conv. in Paterson, N. J.: Mr. John Weitmann, Pearl River, N. Y., Mr. George Mathsen, Nyack, N. Y.

Two new members were elected into the Society. They were: Miss Mary E. Wirtenson, and Mr. Charles G. Wirtenson, both of Nyack, N. Y.

The Rockland County Mineral & Gem Society invites all rockhounds in the vicinity of Rockland Co., N. Y., or visiting near there, to attend their meetings, which are held on the last Friday of each month at 8 P. M. in the Finkelstein Memorial Library, Spring Valley, N. Y.

George Mathsen
Publicity Chairman
32 Washington St.
Nyack, N. Y.

Chattanooga Rock & Mineral Club

The Club met 7:30 in Room 108 Brock Hall, Univ. of Chattanooga, Chattanooga, Tenn., on June 9. Mr. W. F. Lamoreaux, former General Manager of the Tennessee Copper Co. at Ducktown, Tenn., gave a vivid account of the geology of that section, discussing in detail the deposits of copper, iron, sulphur and gold.

July 14 Meeting

The Club met in room 201 Brock Hall at 7:30 July 14. The subject for the evening was volcanoes. Prof. B. K. MacGaw introduced the subject with a broad discussion of the general features of volcanoes, types of eruptions, characteristics of the various ejecta, etc. At the conclusion of his remarks Mrs. Claire Bissell showed moving pictures of Mauna Loa in Hawaii, with closeups of the crater and steaming cracks. She described the different scenes as they appeared on the screen.

Next, General Bissell showed movies he had taken during the war while flying over the Mediterranean, and circling around and over Vesuvius and Etna. A quick change of films brought to light unusual views from the air of the volcanoes, mountains and sunsets of the Andes of South America. The program was closed by Col. Carl M. Gevers who during the war was stationed near Etna when it erupted. He described in vivid detail the darkness, trembling earth, the rumbling, lapilli, rain and mud and the terror of the people.

August 11 Meeting

Through the kindness of the Chattanooga Gas Co., the club met in its air-conditioned lecture room at the usual hour. Since Mrs. Bissell had just returned from a trip west, she

agreed to show her slides. But illness intervened so they were shown by Gen. Bissell. The Carlsbad views were preceded by a description of the caverns by Prof. B. K. MacGaw. Before the Grand Canyon views were shown, Geo. C. Olmsted spoke briefly on the geology of that region, then B. J. Cate described the Yellowstone Park preceding the slides of that area. The Gas Co. then served coffee and cookies much to our delight.

Geo. C. Olmsted
1129 James Boulevard
Signal Mountain, Tenn.

North Jersey Mineralogical Society

Members of the North Jersey Mineralogical Society ranged far and wide over North America during the summer in pursuit of mineral specimens for their collections. Results of their activities were in evidence at the first fall meeting of the Society held in the Paterson Museum, when the program was devoted to personal talks and mineral displays.

Wilfred and Mary Welsh went to the Nova Scotia zeolite locality near the head of the Bay of Fundy. They showed specimens of chabazite, gypsum, analcite, stilbite, apophyllite, agate, natrolite, calcite and heulandite. These minerals are similar to the Paterson zeolites, but are found on islands and near the seashore rather than inland. One island cave was lined with stilbite, Mr. Welsh said.

Harold Gabriels showed two large specimens from Franklin, N. J. One was solid willemite of an odd purplish-gray color; the other was orange-colored zincite and dark gray tephroite in a white calcite matrix.

Ferdinand Askera made a trip to Montana and Wyoming. From Montana he brought back a quantity of small sapphires, mostly of light greenish blue, some rubies which show deep red fluorescence and some fine small pyrope garnets. In Wyoming he collected rough nephrite jade rocks and pebbles, and told of seeing much agate. He said the minerals were fine but the country was rugged and lonesome.

Wesley Hayes displayed a wide variety of minerals, most of which he had collected in person, others by exchange and purchase. Among the latter was an amethyst specimen from Uruguay of deep purple color, and with every crystal in perfect condition, he said. From Arizona he had obtained copper ores showing principally the greens and deep blues of malachite and azurite and containing also several other copper compounds. From Canaan, Conn., he displayed a sunburst of gray tremolite in white calcite, and from Griggstown, N. J., a good specimen of malachite he had found in an old copper mine. He also made a trip to Freemansburg, Penn., to explore a cave and brought back a specimen of cave calcite with aragonite, mostly creamy white.

Charles Franz and Fred Siwiec went searching for geodes in Kentucky, Indiana and

Ohio and found plenty. They said most of their activity was within 75 miles of Cincinnati. The geodes were lined with quartz crystals, mostly clear or white, a few slightly pinkish or yellowish from metallic stains. Franz also showed a specimen of white fluorite with barite from Kentucky, and a large group of fine slender white celestite needles on dolomite rock.

William B. Aitken went back to his old home in Canada and returned with several metallic specimens which he had cut into slabs and polished on one side. Among them were one of silver from Great Bear Lake, one of gold in black quartz from Quebec, one of niccolite from Cobalt, Ontario. He also presented polished slabs of red serpentine from Burleigh Falls, Ontario, and dark massive garnet from Kalamazoo, Ontario. From Brazil he had received some odd quartz crystals with phantom crystals of amethyst enclosed.

Mrs. Lawrence Little spent some time in New Mexico and displayed honey-colored onyx and travertine, a handsome specimen of chrysocolla from Bisbee, Arizona; other copper ores and jaspers; from Oklahoma she acquired good specimens of dolomite with sphalerite, and of galena cubes on rock matrix.

Russ De Roo showed a large and perfect feldspar crystal in a matrix of mica and quartz from Haddam Neck, Conn.

William Pfeifer also collected in Connecticut, at the re-opened Strickland quarry in Portland. His best specimen was manganapatite showing creamy yellowish fluorescence. He had other pegmatite minerals from the same place, including spodumene altering to kunzite, lepidolite in feldspar, cookeite and tourmaline so fine and closely crystallized as to present almost solid rock.

George Stevens displayed a jar of pulverized zinc minerals of several colors from Franklin, N. J., the mineral sand having been arranged in the jar so as to make an intricate and perfect pattern of colored bands and scallops. He said the specimen was a gift which he prized highly.

Mr. and Mrs. Walter Dallery made a trip to Canada which took them as far north as the famed nickel mines at Sudbury. They brought back some "black moonstone," similar to labradorite. While traversing New York they had stopped to gather a few Herkimer "diamonds" at Middleville.

Marian Brown Casperson
Publicity Chairman
9-11 Hamilton Street
Paterson 1, New Jersey

Summer Activities of the Georgia Mineral Society

Screening and panning rubies in the Cowee Creek area near Franklin, N. C., was a special treat for members of the Georgia Mineral Society who were field-trip guests of the

Southern Appalachian Mineral Society for the occasion on July 18.

The owner of the property, Weaver Gibson of Caler Fork, had bull-dozed off the overburden and despite some rain which interfered with screening, rubies and other types of corundum were found by many of the group.

Nearly 200 persons were present and cars were observed from distances as far away as Maine and Ohio. Col. Orville M. Hewett, president of the Southern Appalachian Mineral Society, was in charge of arrangement for the corundum collecting. Dr. A. S. Furcon, of the Georgia Geological Survey, arranged for the Georgia group to attend.

Cowee Creek rubies are sought by amateur collectors all over the country as this is the only locality in the United States where they can actually be found. The writer was fortunate in being given a faceted Cowee Creek ruby by Bob Daniels of Toccoa, Georgia, who has an outstanding collection of gems that he has found, cut and polished himself.

On August 29, the Georgia group collected staurolite and gold from a stream in the mountains of Fannin County, near Blue Ridge, Georgia. The staurolites ranged from medium to small. They were black and fresh and exhibited a great variety of twinning habit. The stream sands were found to be full of them as well as the soil near the stream.

A few of the lucky members got some coarse gold by panning. It occurs in the soil near the streams, is not rounded, and is said to be of local origin. This locality has been considered out of the gold belt.

About 150 persons attended the Blue Ridge field trip. Among them were 40 Boy Scouts from Toccoa and members from Chattanooga and other parts of Tennessee. The Georgia Society has members in every section of the country—some as far west as California, as far north as Maine and Washington State, and as far south as Florida.

Erna Lee Mason
Corresponding Secretary
c/o State Health Department
Atlanta, Georgia

An Immediate Decision!

Editor R & M:

Thank you for the July-August, 1953, complimentary copy of your publication.

Enclosed is my check for a year's subscription beginning with the September-October issue.

I found your last issue so interesting that I immediately desired to have each copy in the future.

Mrs. Arthur S. Imell, Jr.
838 Clover Street
San Antonio 12, Texas

August 31, 1953

Mid-West

Rocks and Rills of Southeastern S. D.

The newly organized Rocks and Rills Club of southeastern South Dakota had their first field trip, August 2nd, to Milltown, S. D. The group met at Mose Ortman's Museum, Marion, S. D., and after looking over the Natural History Museum, the members continued to Milltown in Hutchinson County. It is about 25 miles west of Marion and Milltown has only 2 stores and 3 or 4 houses. From there we went one mile west and 4 miles north, until we came to A. J. Stainbrook's farm. Across from his home we entered his pastures, down hills to the lowlands. Here we parked in the shade and ate our lunch. Everyone was excited to explore, so lunch did not take long. To the steep hill southwest of our tree-shaded spot, we hunted for specimens. We found 250 sharks teeth, claystone concretions (some like marbles) and some in huge chunks, also a few rosettes. Lava formations were found, which evidently were brought in by glacier. It was a very successful rock hunt and we all enjoyed the new hilly scenery and the wild, beautiful James River. We are not fortunate enough to live in the West or South where we could find gems or colorful minerals, but we really are thrilled when we find something different. The Bad Lands, of course, have everything, but we are 400 miles from there.

Mrs. Edwin P. Olson
Beresford, South Dakota



Rocks and Rills Club members on Milltown, S. D., trip. Left to right: Nora Christensen, Mose Ortman, Elizabeth Olson, Clara Sorenson, Fred Smith, Elmer Sorenson, Mrs. Smith. In front, Myrtle Ortman.

Chicago Rocks and Minerals Society

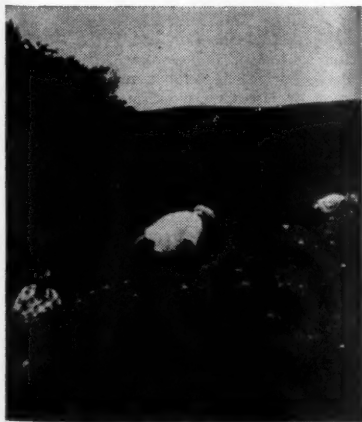
At the monthly meeting of Chicago Rocks and Minerals, September 12th, Robert W. Fine of Arlington Heights, Illinois, gave an interesting and informative lecture on and demonstration of jewelry casting.

The lost wax process, the theme of the evening, was brought into prominence by Benvenuto Cellini, Italian goldsmith of the 16th Century. Mr. Fine demonstrated the making of a model in wax, mounting of the sprue pin or pins, painting the model with a specially prepared plaster investment—to eliminate possible air pockets—setting the prepared model into a fireclay flask containing plaster investment material. In about two hours the investment would be firm enough to place in an electric oven, preheated to 800 or 900 degrees to eliminate wax mold and set the investment, and then brought up to 1300 degrees for casting.

The metal of which the item is to be cast is brought to flowing heat—the flask assembled in the centrifuge, forcing by gravity the metal into the mold.

The thrill's great on removing the cast from the now crumbling investment. A little polish and presto! an item of which one can be justly proud.

The meeting was honored by the presence of Mr. and Mrs. J. O. Montague of Wisconsin Geological Society and Mr. J. I. DeLong of Chicago Lapidary Club.



Looking for Shark's teeth at Milltown, S. D.

Rochester Earth Science Society

This is a report of the summer activities of the Rochester (Minn.), Earth Science Society. There were three well attended field trips. The trips in June and July were mainly to look for Lake Superior agates in the glacial drift in the gravel pits at Frontenac and Winona, Minnesota, and in other exposed areas in the Mississippi Valley. Agates are not very plentiful but some rather nice ones were found. On Sept. 13 our society were hosts to the Minnesota Geological Society. Good specimens of Ordovician fossils (brachiopods, bryozoa, gastropods, and cephalopods) were found in a quarry east of Rochester. After a picnic lunch at Silver Lake Park in Rochester the group went to see the iron mines at Spring Valley, Minnesota. An official of the Hanna Mining Co. talked about the occurrence of iron in that area and explained the mining procedures.

The Rochester Earth Science Society is planning an exhibit of rocks and minerals at the public library in connection with Book Week, Nov. 15 to 21.

The Society maintains a permanent exhibit in the office of the Director of Adult Education planned especially to stimulate interest in the earth sciences among the teachers. This exhibit is changed every three months, emphasizing different phases of earth science. Recently it was changed from a lapidary exhibit to an exhibit of leaf fossils from the Mazon Creek area of Illinois.

Mrs. Dana A. Rogers
820-10½ St., S.W.
Rochester, Minn.

West

Los Angeles Lapidary Society

An auction was the theme of The Los Angeles Lapidary August meeting. Jack Gaston, as auctioneer, did a splendid job, and an abundance of good material was offered for sale.

Nell Stein
Corresponding Secretary
6110 Rimpau Blvd.
Los Angeles 43, Calif.

Sacramento Mineral Society

At the September 25th meeting of the Sacramento Mineral Society, Mr. Douglas R. Brown, geologist for the State Department of Highways, spoke on "Travels in the Philippines", which lecture was illustrated with slides.

Paul H. Steele
Chm. Pub. Com.
Box 935
Sacramento, Calif.

Pacific Mineral Society

A record attendance is always assured when our group is honored by our first President, Mining Engineer, Victor Arciniega. This year he told us of the general geology of the Grand Canyon. His colored pictures were illustrative and exceptional.

Five eras and twelve Geologic periods are exposed in this mile deep cut. However no Devonian or Silurian is found in this well marked and colorful display.

Descending from the wooded Kaibab plateau at about 6,000 feet, one travels through the yellowish cross bedded Coconino and other sandstones for about 1900 feet, then the red wall limestone continues to the Cambrian, consisting mainly of greenish shales. As these highly colored limestones and shales pick up the lights and shadows, the unusual beauty of the Grand Canyon is revealed.

After the Cambrian come the Grand Canyon Series dominated by the Algonquin, quartzite, granitic formations and schist, and finally the Archaic basement rock. Here the rapid and silt filled Colorado River continues its work of grinding and cutting.

The succeeding divisions of the steep mile deep cut are in their original position, a condition seldom seen in our California geology.

Dr. Foster has returned from Europe with some priceless additions to his rare and early books on Mineralogy. One by Phillip Rashley is from Cornwall, England, and was printed in 1797. Another one from Germany was printed in 1753. Both have color plates.

Mr. Jack Jones furnished the August display from his fine collection.

A three day Field Trip to Goodsprings, Nevada, will be held in September. Heteroginites, Cerrusite, Wulfenite, Smithsonite, Galena and Dolomite and related minerals have lured us there several times.

September Meeting

The geology and mineralogy of Montana, especially that of the famous "Hill" at Butte, was the subject of the speaker, Mr. James F. Underwood at the September meeting.

Eocene or late Cretaceous are the dominant periods of the area. Butte lies on the western border of the Batholith, and contains much jointed, granite or quartz monzonite, thus permeable to solutions. Aplite, quartz porphyry dikes, rhyolite and andesite are characteristic of the Northwest portion of the district.

Contained in this zone one finds a central copper zone, free from zinc and manganese, an intermediate area with copper and much sphalerite, also an outer without copper. This is silver bearing and contains quartz, rhodonite, rhodochrosite, sphalerite and pyrite.

Our speaker explored and studied fields where corundum, spinel, sapphire, amethyst and tourmaline are to be found to say nothing of agates. In spite of difficult roads and the fact that snow covers the ground ten months of the year, he displayed some excellent speci-

mens.

He visited many of the deep mines of Butte, some of the mine levels have been burning for many years, but the cages operate through the "fire country" and the work goes on at lower levels.

The returns from gold, silver and copper have been fabulous at Butte. The manganese, which has a strategic value, occurs in the silver zone and is found on the surface as ledges of quartz stained with manganese. Some of these specimens were very beautiful.

Only recently the company has begun open pit mining with success, this will doubtless bring interesting facts to light.

The many nationalities of this town, each keeping apart and doing certain types of work, each preserving its customs and culture to an amazing degree was well explained by Mr. Underwood. We are indebted to our Past President for a most informative evening.

The last field trip yielded some good specimens, Calcocite, Smithsonite. Hydrozincite and Feldspar. The next trip will be visit to Frazer Mountain Park and radiated Colmanite Selenite and Molybdenite are the goals.

R. Royer

1234 W. 41st St.

Los Angeles 37, Calif.

Cheyenne Mineral & Gem Society

At their Sept. meeting the Cheyenne Mineral & Gem Society heard Mrs. Roy Bible discuss the "Romance of Finger Rings". Two interesting features made the talk illuminating; she had drawn 20 enlarged pen and ink sketches of unique rings of the ages, such as the poison ring, the pipe stopper ring, the toe ring, etc. Then she displayed and related the history of a gem case full of antique and unusual rings, borrowed from the local Cheyenne people and club members.

The summer activities, besides the regular meetings were:

JUNE

The Cheyenne Society was host to Laramie, Torrington, Kimble, Neb., and Fort Collins clubs at an all day swap picnic and rock hunt, on the Doran Lumis Ranch just south of town. Several members donated 5 large cartons of rocks, minerals, Xls, jade, fern stems, pet. wood and agate, which was scattered over one acre of the ranch and the members and guests spent a happy afternoon hunting the rocks and bragging about their finds over the evening campfire, which culminated the days activities.

JULY

The Rex Young Society was host to the Cheyenne Society to the swap picnic and rock hunt for fortification agate at the Guernsey Dam.

AUGUST

A joint field trip with the Rawlins, Laramie, and Casper Clubs, to Medicine Bow, for pet. woods, Xls and agate.

SEPTEMBER

Field trip with members of the Colo. Mineral Society to Utah for lace agate, barite, and dinosaur bone.

Mrs. R. J. Laughlin
Corresponding Secretary
204 E. 3rd Ave.
Cheyenne, Wyo.

East Bay Mineral Society, Inc.

The members of the E. B. M. S. have been busy people. On Sept. 13th we had our annual picnic and as is usual, cut our Society Birthday Cake. This was our 14th birthday, as we were organized in August of 1938. We have a membership at the present time of 264 and since we started our meetings again after summer vacation, 12 new members have joined.

We were most fortunate in having Bob Winston of California College of Arts and Crafts speak to us on Sept. 17th. His colored slides and specimen jewelry were most interesting and his ability to transfer the patterns he sees in every day things into jewelry design is really quite amazing.

Sept. 19th & 20th a group of ten carloads made the overnite trip to the Benitoite Mine in San Benito County, Calif. Beside Benitoite there were ten other crystal specimens to be found in that area. Everyone returned home well satisfied with their finds. This area is very rich and well worth visiting. The only drawback of course is the dryness and all drinking water had to be carried in. But to rockhounds, carrying a little water is the least of their problems—getting all their specimens home without a single broken crystal is most important. Mr. Cole who is in charge of the mine, charges \$1.00 entrance fee and assures you of a good specimen. We all felt the \$1.00 was well spent.

Betty Patte:son
Secretary
P. O. Box 1196
Oakland 4, Calif.

Southwest Mineralogists Inc.

"Queen of the Gems Titania" was the subject of a film enjoyed by the Southwest Mineralogists in July.

Mr. Loeb of Linde Air Products Co. presented the program. Mr. Loeb spoke briefly on man made gems and their many uses in modern living.

Congratulations to Henry Green for holding the lucky ticket on the display case offered by Southwest Mineralogists. Mr. Green is a member of long standing in SWM, and always in the winners circle. The lucky ticket was bought at the San Diego Convention.

The identification of minerals has been made easier through a simplified method de-

veloped by Dr. Tunell of U.C.L.A.

Dr. Tunell explained to the Southwest Mineralogists that each mineral has its own fingerprint in its interfacial angle.

As early as 1700 crystal measurements were recognized as a means of mineral identification.

Many years of research and study were spent by Dr. Tunell developing his present method. This information has been compiled into bulletin form and will be published the early part of next year. This program was presented at the August meeting.

Connie Trombatore
Corresponding Secretary

Made Many, Many Swaps!

Editor R & M:

Enclosed find check for subscription renewal and for classified ad. My ad in July-August issue certainly exceeded my hopes. I made many, many swaps and acquired much fine material and, to judge from the lively correspondence engendered, gave as good as I got. I have met some very interesting people through this ad and wish to run again for which check for subscription and ad together is enclosed.

Bernard W. Powell
11 Wesskum Wood Rd.
Riverside, Conn.

Sept. 15, 1953

Peter Manuel Moves to Denver, Colorado

Peter H. Manuel, formerly manager of Peters and Edwards House of Minerals in Somerville, Mass., is now residing in Colorado. He is again dealing in minerals and is in business for himself under the name of Peters Rocks and Minerals, Carlton Hotel, 509-15th St., Denver 2, Colo.

Colorado School of Mines Publishes New Index

The Colorado School of Mines has revised and published a new index to cover all publications at the famous mineral engineering college.

Announcement of the printing of the 89-page book was made by LeRoy W. Goodwin, director of the department of publications.

The index is of particular value since it lists publications that are out of print and can be viewed only in the "Mines" library as well as books available for distribution.

Included is a lengthy listing, but subject, of the mineral industry topics covered in the college's well-known Quarterly and in independent "Mines" publications. There is also an index of authors and a listing of these titles covering the years since 1896.

In addition the college has compiled a listing of only those publications which are available for sale. Interested persons can obtain either the complete index or this specialized

listing free of charge by writing the Department of Publications at the Colorado School of Mines, Golden, Colo.

Publications Recently Received

Fischer—Praktische Edelsteinkunde. By Dr. Ing. Walther Fischer. 1953, 187 pages, 3 pls. 6 3/4 x 9 1/2, paper bound—\$4.00. Published by Verlag Gustav Feller-Nottuln, Corneliusstr. 8, Kettwig/Ruhr, German.

This book was written by this well-known German mineralogist for the amateur and professional lapidaries. Dr. Fischer was, for 20 years, director of the State Museum of Mineralogy and Geology, Dresden, and is now director of the trade schools of Idar-Oberstein, including the School of Diamond, Gemstone and Goldwork Industries. His experience fits him to write an authoritative work on lapidary techniques. He has, in addition, available to him the accumulated experience of some of the master cutters of Idar; Walter Alt, Erich Hamscher, Richard Hahn, and others. One half of the book is devoted to crystallography, crystal-physics and crystal-optics as they influence the proper cutting and orientation of a gem. It is perhaps unfortunate that such subjects, usually difficult for the ordinary individual to easily understand, should necessarily be introduced so early in a book or course in gemology, but a thorough knowledge of these subjects would prove valuable to the lapidary. The concise exposition of these subjects and their relation to the cutting and polishing processes, and their effect upon the resultant gem is a valuable addition to the literature of the lapidary arts.

Sixty-two mineral species are described in the second half of the book. Most useful to the lapidary are the proper angles and proportions for each gem. The kind of wheels and laps, grinding and polishing abrasive are also given for each stone. Where pleochroism is an important characteristic to be considered in the proper orientation of the cut stone a figure showing the stone in juxtaposition to a crystal drawing indicates the orientation for revealing the best color. This relationship is frequently ignored by lapidaries, with the result that the finest color is not revealed in the finished gem. For instance, the diagram for andalusite shows how the final result can be a red or a green gem.

In order to keep the book within a reasonable size and because other books on amateur lapidary technique adequately cover the field, the mechanical tools of the lapidary are not considered. As a work in practical gemology, the book is a very useful and interesting one. It is however, printed in German, but would warrant an English translation.

W. F. Foshag

September 4, 1953

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Iridescent Sphalerite, Okla. Some beautiful material. 1" to 3x4" priced 50c, 75c, \$1.25, \$1.75, \$2.50, \$3.50 up.

Smithsonite, New Mexico. Various shades of green. 1 1/2x1 1/2" 75c, 2x2" \$1.00, 2x3" \$1.50, 3x3" \$2.50, larger \$3.50.

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Jelly Fire Opal, Australia. Firey chunks will make nice cabs. \$1.00, \$2.00, \$3.50 each. Also light fire and Boulder opal.

Buddstone, Africa. Looks like malachite or jade. 3 sq. in. slab for only \$1.00.

Apache Tears, Arizona. Clear black obsidian nodules 1/2 to 1 1/2". Per pound \$1.00.

Starbrite Obsidian, Utah. Small white spots 1/8" or less against jet black background. 3 sq. in. slab 85c.

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Tourmaline, Brazil. Light to medium green. Facet quality. 10 grams for \$3.50.

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A Galaxy of Beautiful Minerals for Christmas, 1953

Every collector, from the youngest to the most advanced, admires a beautiful specimen, for beauty is often synonymous with truly choice quality — and for the latter there is no substitute. It is therefore gratifying to me to be able to offer this present selection of attractive specimens to those wisest of collectors who know and want real quality above all else when buying minerals.

EPIDOTE, Sulzer, Alaska: prismatic green xls w. Quartz xls. 3x2 1/4"	\$ 5.00
HUBNERITE, Colorado: black radial xl aggregates on rock, 3x1 1/2"	2.50
COBALTOCALCITE, Spain: magenta-hued banded coating on rock, 3x2 1/2"	8.00
AMAZONSTONE, Colorado: cluster of deep green term. xls, 1 1/2x1 1/2"	2.50
Another, 2 large crystals intergrown side by side, 2x1 3/4"	5.00
PROUSTITE, Joachimsthal, Bohemia: bright red xls on Calcite, 2x1 1/2"	12.50
GOLD, Ouray Co., Colorado: spangled in granular quartz, 1x1"	2.00
Another, near Alma, Colo.: richly xline on white quartz, 2x1 1/2"	15.00
GALENA, Portugal: cubic xls partly invested w. Dolomite xls, 3x2"	2.00
SULPHUR, Sicily: xls on drusy Aragonite, one xl over 1", 3x2"	10.00
SCHEELITE, Spain: loose tan-colored xl, 7/8"	1.75
Another, choice large bipyramidal xl, 1 1/4x1"	7.50
APOPHYLLITE, N. J.: white xls on matrix up to 1/2", 2 1/2x2"	2.50
DIOPHASE, Mammoth, Ariz.: plush of acicular xls lining vugs, 3 1/4x2 1/2"	15.00
MIMETITE, Campylite, Cumberland: brown xls on matrix, 2 1/2x1 1/2"	3.00
COPPER IN CALCITE, Michigan: nearly parallel grouping of xls, 1 3/4x1"	4.50
Another, scalenohedral xl with internal copper "phantom", 2 1/2x1 1/4"	12.00
GREENOCKITE, Joplin: yellow coating on sphalerite, etc., 2 1/2x2 1/4"	3.00
HEMATITE, "Eisenrose," Brazil: small loose xl aggregate, 7/8"	2.00
Another, very choice, 1 3/4" diameter, 3/4" thick	10.00
CINNABAR, Almaden, Spain: rich xline mass with xls in vugs, 3x2"	7.50
BERYL, Brazil: greenish terminated xl, partly transparent, 2 1/4x1 3/4"	17.50
Another, term. prismatic greenish opaque xl, w. clear, partly broken end, 4 3/4" long X 2 1/4" diameter	37.50
RHODOCHROSITE, Butte, Montana: pure pink xline mass, 3x3"	3.00
WITHERITE, Ill.: loose greyish twin xl, 1 1/4x1 1/4"	2.00
Another, doubly terminated w. small attached xls, 2x1 3/4"	7.50
QUARTZ, N. Y.: 3 so-called "Herkimer diamond" xls in vugs in rock, 2 3/4x1 1/2"	3.00
PYRITE, Leadville: group of splendid striated cubic xls, 3x3"	9.00
FLUORITE, Ouray Co., Colo.: green octah. xls on white quartz, 5x4"	7.50
ADAMITE, Mapimi, Mexico: dull yellowish xls on limonite, 4x3 1/2"	4.00
Another, superb brilliant yellow-green xls on matrix, 3 1/4x2"	15.00
QUARTZ, Ouray Co., Colo.: group of very brilliant clear xls, 4x3"	5.00
Another, choice cluster of lustrous limpid xls, 5x3 3/4"	7.50
Another, a large loose term. "milky quartz" xl, very beautiful, 7 1/2x4"	12.00
SIDERITE, Arizona: mammillary iridescent mass, 4x3 1/2"	6.50
TOURMALINE IN QUARTZ, Brazil: green xls in xline quartz, 4x3"	15.00

Every specimen is unconditionally guaranteed to please or your money back if returned in saleable condition within 10 days time after shipping from Denver. Please remit with order, preferably postal money order, and allow extra for estimated postage charges as I sell only f.o.b. Denver, Colorado; any overage will be refunded. Sizes of specimens are approximate only.

I welcome inquiries and correspondence regarding collectors' wants, and extend a cordial invitation to all collectors to visit me while in Denver and see my large and beautiful stock of crystallized minerals from world localities.

E. M. GUNNELL

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Phone RAce 4986

GEM MATERIALS & RARE MINERALS

1. Atomic colored **GREEN DIAMONDS**. These are a MUST for every collection. All stones are perfectly cut, very brilliant and of a rich green color which is guaranteed by the developers of the process not to change. We have been given the exclusive right to merchandise these Diamonds. Prices are as follows, including Federal tax: (a) 1/20th carat or 5 points \$13.50. (b) 1/10th carat or 10 points \$27.00. (c) 1/5th carat or 20 points \$54.00. Larger sizes available at higher prices.

2. **STAR SAPPHIRE ROUGH, Ceylon**: (a) An excellent buy. Crystals weighing a few carats to 100 carats or more. Principally golden and blue colors. Stars cannot be guaranteed in all crystals, but a high percentage will produce good stars. It is worth the price as a cab material irrespective of whether stars are obtained. 18c per carat. (b) Cabochon and specimen grade xls., small to very large, 7c per carat.

3. **TIGEREYE, South Africa**: Finest quality. (a) Yellow and golden 95c per lb. or 5 lbs. for \$4.00. (b) Cherry \$1.50 per lb. or 5 lbs. for \$6.25. (c) Blue \$2.00 per lb. (d) We have received the finest shipment we have ever had of the most interesting striped material with green predominating (mixed colors). \$2.50 per pound.

4. **AMETHYST, Guerrero**: (a) Best available grade for tumbling. Quantity lot prices on request. (b) Choice dark material with many pieces containing faceting areas. \$4.50 per lb. or \$2.25 for 1/2 lb.

5. **AGATE, Mexico**: (a) Most colorful nodules available. Mixed medium sizes \$1.50 per lb. (b) Small nodules 75c per lb.

6. **AGATE BAROQUES or NUGGET GEMS**. (a) Many fine varieties beautifully finished in mixed sizes. \$3.00 for 1/2 lb. (b) We are tumbling large quantities of fine Brazilian materials such as Amethyst, Aquamarine, Tourmaline, as well as Tigereye and Turquoise and other interesting materials. 25c to 80c per stone, according to size and material.

7. **OPAL, Mexico**: Red, Cherry and Fire Opal cabochons. 45c to \$1.00 each, according to size. (b) Cherry and red Opal rough, medium to large pieces. \$1.20 per oz. (c) Cherry Opal with matrix attached. 40c per oz. (d) Fire Opal in matrix, mine run, \$3.00 for 1/2 lb.

8. **SMOKY QUARTZ, Brazil**: Cairngorm variety, faceting grade. \$3.25 per lb.

9. **WULFENITE, Mexico**: The largest and finest stock available, including brilliant Vanadinite on orange Wulfenite. Please indicate size of specimen desired for price quotation.

10. **THOMSONITES**: (a) Highly polished North Shore pebbles of fine grade. 75c to \$1.25 each, according to size. (b) Unpolished pink Thomsonites, Minnesota, in mixed sizes at \$2.00 for 1/4 lb.

11. **BENITOITE, California**: Beautiful blue xls. in matrix. 3x6 \$10.00; 2x2 1/2 \$4.00. Other sizes available.

12. **RHODOCHROSITE, Colorado**: Well crystallized brilliant pink xls. on Sphaerite and Pyrite. 3x4 1/2 \$5.50; 2 1/2 x 3 \$3.75.

13. **MICA SLABS** with beautiful RUBY COLORED GARNET INCLUSIONS, Old Cat Tail Mine, Yancey Co., N. C.: From about 1x2 to 5 1/2 x 8. 35c to \$4.00 per slab, according to size and quality.

14. **RAM'S HORN CURVED GYPSUM, Mexico**: Sizes from about 2 1/2" to 12" or more. 50c to \$5.00 per specimen, according to size and quality.

15. **LABRADORITE, Canada**: Thick polished slabs of gem grade. 1x1 3/4 \$1.00; 1 3/4 x 2 1/4 \$3.70.

16. **SODALITE, Canada**: \$2.00 per lb. (no tax).

MINIMUM MAIL ORDER \$5.00 plus postage and 20% Federal tax on taxable gem materials. In keeping with the usual trade practice, all orders must be accompanied with a remittance to cover the value of the materials mentioned in this advertisement. All materials are sent on a ten day approval basis. Satisfaction or your money promptly refunded. Open week days 9 to 5. Closed Sundays. Our comprehensive retail price list of gems, gem materials and lapidary supplies is now available at cost. Price 45c. Our wholesale price list #7 is now available to dealers.

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CUFF LINKS

\$3.58

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Your Stone Cut, Or Recut and Polished, 75c For Most Cabochons.

Squash Blossom Necklace

Sterling Silver — 20" long—16 Blossoms — Turquoise Stone in Nazzhi.

PRICE: \$16.45.

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Bracelet\$9.70

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Florence Mine, Egremont, Cumberland, England.

Beautiful brilliant black crystals, of a quality never seen from any other locality. Some are in combination with sharp bipyramidal quartz crystals, pink dolomite, colorless fluorite crystals, barite, calcite, or aragonite. Every one of these English Hematites is a fine, one-of-a-kind, piece. No collection is complete without representatives of this spectacular Iron Ore. We don't care if he has one or one dozen of these strikingly individual specimens, there will be a mistletoe light in his eyes when he sees this one on Christmas Morning.

1 x 1", 25¢ to \$1.50; 1 x 2", 50¢ to \$2.50; 2 x 2", \$1.50 to \$5.00; 2 x 3", \$2.00 to \$7.50; 3 x 4", \$3.00 to \$10.00; larger \$7.50 to \$20.00.

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Pieces range from (1) pure white Cryolite through (2) a few xls of Sphalerite, Pyrite, Galena, etc., (3) Sprinkled with lots of xls to (4) xls of Galena, Pyrite, Sphalerite and other minerals in a matrix of Cryolite. Specimens weigh from one half pound up. Should make beautiful spheres.

\$3.00 Half pound—\$5.00 Pound

Minimum order—\$3.00

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Blades are 8" 80 grit which have been used by us in varying amounts, but are still quite good. Cost new approx. \$50 each. Ideal for lapidaries and tile cutters.

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**25th ANNIVERSARY NUMBER
ROCKS and MINERALS**

Sep. - Oct., 1951 (Whole No. 224)

128 pages — 60c

ROCKS AND MINERALS

Box 29

Peekskill, N. Y.

Pagoda - Pagoda - Pagoda

3" High \$2.50

3½" High \$3.00

4" High \$3.50

Some Smaller

Some Smaller

These beautiful crystal pagodas will again be available after October. Dress up your stone collection with a perfect cut crystal pagoda. They will make lasting Christmas gifts. We also offer 50 mm Brilliants \$5.00, 35 mm Brilliants \$2.50. 9 to 11 mm Brilliants 40c each; 26x20 mm Octagon cut \$2.00; 22x16 mm Emerald cut \$1.50 each. A few 2" spheres \$7.50 and of course our complete line of the best cuts of crystal necklaces 15" at \$5.00 and 18" at \$6.00 all on chains with silver clasps.

Beautiful 5 point crystal star 14mm \$7.00 per dozen, 20 mm \$10.00; 30 mm \$14.00 per dozen. **Genuine zircon**, brilliant cut, 1 to 5 carats at only \$1.00 per carat. **Montana agate cabochons** 30 - 40 mm ovals for brooches and pins \$1.00 each; 24x30 mm ovals at 90c; 18 - 13 mm oval & cushion 60c each; 16x12 mm 50c each. **Burma jade** 15x20 cabs 60c; **New Zealand jade** 18 - 13 cabochons 75c.

Synthetics — facet cut spinels, all colors 8x10 octagon, 50c each; 10x12 octagon cuts \$1.25; rubies \$1.50. White super polish spinels in 1 to 5 carats, brilliant cuts at 60c per carat. Custom cabochon cutting at reasonable prices.

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Montana Agate (sawed slabs) \$7.00 lb. Rough 50c to \$1.50 per lb.

Tepee or Hells Canyon Agate (banded) polished slabs \$1.50 up. Rough \$1.00 lb.

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Agate Wood (So. Dak.) various colors—rough 10c lb. Hundreds of polished slabs for decorative purposes. Fireplace requirements handled promptly.

Fossil Cycad specimens \$1.00 per lb. Rough sawed slabs \$2.00 to \$12.50 per slab. Polished slabs \$4.00 per slab and up.

Pudding Stone (good solid material) 35c per lb., any size chunk you may need up to 75 lb. pieces.

Black Hills Materials and decorative rocks of all kinds — write for what you want.

Fluorescent Chalcedony or Calcite by the lb. 50c — 100 lb. lots 30c.

Ammonite, various sizes \$3.00 and up.

Agate Jewelry at reasonable prices (for resale only) jewelry purchasers must furnish license numbers.

FROM MEXICO DIRECT TO YOU.

APATITE xls. from 1" to 3" terminated specimens.

APATITE xls. from 3 to 30 grams. Facet quality.

APATITE xls. in matrix, nice specimens, from 1" x 1" to 8" x 8".

FIRE OPAL in matrix, from 1" x 1" to 2" x 2".

HONEY and CHERRY OPAL Cabochons. From 8 x 10 mm to 10 x 15 mm top quality.

CARVED AMETHYST. Frogs, Fish, Flies, Bees, Lizzards, suitable for mounting in jewelry.

PRECIOUS TOPAZ. Pink, White, Yellow, Golden. Facet and Cabochon quality.

PRECIOUS TOPAZ mineral specimens.

AMETHYST. Facet, Cabochon, qualities.

Other materials arriving regularly.

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STAUROLITE, Taos Co., N. M. Collection of 5 xl forms; single, 30 Deg. twin, 90 Deg. cross, compound twins, and Trilling; perfect, clean xls. \$5.00 per set.

QUARTZ, Japanese Twins (Heart shaped); one or more scattered on plates of regular quartz xls. From a local mine. 25c to \$2.00.

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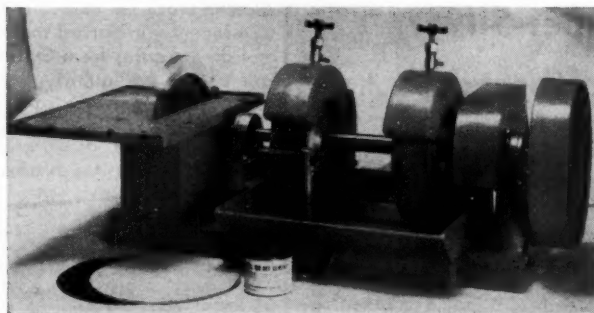
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All Metal Construction:—Aluminum alloy base with cast-in splash pan and cast-in bearing mounts. The bottom of base has ribbed construction to give machine great rigidity.

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Grinding Wheels:—1—8x1 $\frac{1}{2}$ " 100 grit and 1—8x1 $\frac{1}{2}$ " 220 grit.

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Unit as illustrated includes 1—8" aluminum sanding disk, 2 cloth sanding disks, 1 felt buff and 1 jar Peel-em-off Cement.

Dimensions:—Length—31 inches; Width—14 inches; height—14 inches.

Weight:—50 pounds, Shipping Weight—85 pounds.

Price less motor—\$125.00

F.O.B. Factory

Crating charge—\$5.00

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with the same High Quality Workmanship and Materials*

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ROCKS AND MINERALS

BOX 29

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MINERALIGHT instantly locates, identifies vital minerals, saves hours of fruitless search.

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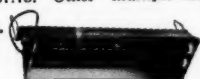
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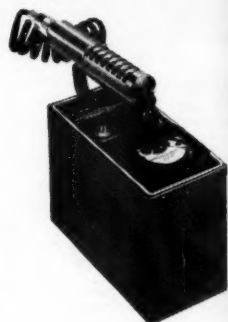


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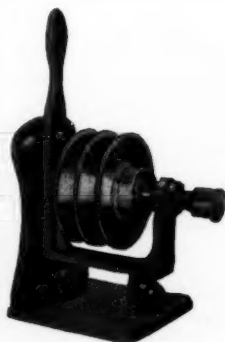
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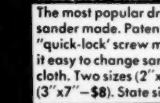
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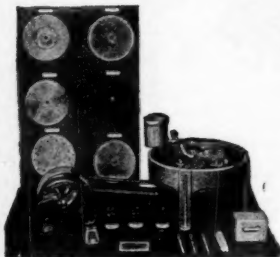
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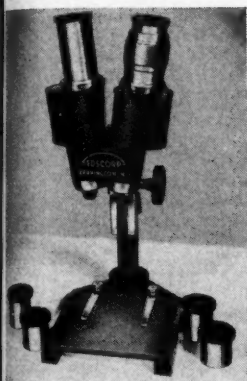
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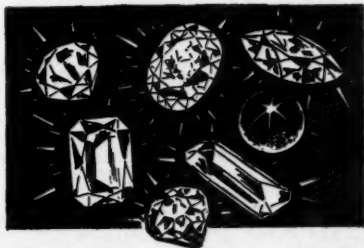
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